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TWENTY-FIFTH ANNUAL REPORT

ON THE

Wm Gurley

from James Hall

Aug. 12th. 1

New York State Museum of Natural History,

Albany

BY

THE REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW YORK.

[EX-OFFICIO TRUSTEES OF THE MUSEUM.]

TRANSMITTED TO THE LEGISLATURE APRIL 18, 1872.

ALBANY :
THE ARGUS COMPANY, PRINTERS.
1873.

The first part of the book

is devoted to the

history of the

book

The second part of the book

is devoted to the

The third part of the book

The fourth part of the book

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The eleventh part of the book

STATE OF NEW YORK.

No. 83.

IN SENATE,

April 18, 1872.

TWENTY-FIFTH ANNUAL REPORT

ON THE

STATE MUSEUM OF NATURAL HISTORY, BY THE
REGENTS OF THE UNIVERSITY OF THE STATE OF
NEW YORK.

UNIVERSITY OF THE STATE OF NEW YORK:

OFFICE OF THE REGENTS,

ALBANY, *April 18, 1872.* }

To the Hon. ALLEN C. BEACH,

President of the Senate:

SIR.—I have the honor to transmit the Twenty-fifth Annual Report of the Regents of the University on the State Museum of Natural History.

I remain, very respectfully,

Your obedient servant,

E. C. BENEDICT,

Chancellor of the University, pro tem.

STATE OF NEW YORK.

IN SENATE,

January 12, 1872.

REPORT

OF THE

COMMISSIONERS OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION

PASSED BY THE SENATE

APRIL 18, 1871.

ALBANY:

JOHN B. LEECH, PRINTER.

1872.

NEW YORK:

W. H. BROWN, PRINTER.

1872.

ALBANY:

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[*Ex-officio* Trustees of the State Museum of Natural History.]

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STANDING COMMITTEE OF THE REGENTS, SPECIALLY CHARGED WITH
THE CARE OF THE STATE MUSEUM.

1872.

THE GOVERNOR.

MR. CORNING.*

MR. CLINTON.

THE SUPERINTENDENT OF PUBLIC INSTRUCTION.

MR. HALE.

MR. BREVOORT.

MR. JOHNSON.

DIRECTOR OF THE STATE MUSEUM.

JAMES HALL, LL. D.

ASSISTANTS IN THE MUSEUM.

R. P. WHITFIELD, IN GEOLOGY AND PALEONTOLOGY.

J. A. LINTNER, IN ZOOLOGY.

CHARLES H. PECK, IN BOTANY.

* Deceased April 8, 1872.

R E P O R T.

To the Honorable the Legislature of the State of New York:

The Regents of the University herewith submit the Report of the Director of the State Museum of Natural History, which contains a full exhibit of the condition and progress of the museum during the year 1871, and also the report of the Botanist on his department. These officers have worked with zeal and success, and, as the result of their labors, the museum is constantly becoming a more perfect representation of the Natural History of the State.

Respectfully submitted.

E. C. BENEDICT,

Chancellor of the University, pro tem.

REPORT ON THE STATE MUSEUM.

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REPORT OF THE DIRECTOR.

*To the Honorable the Board of Regents of the University of the
State of New York:*

GENTLEMEN:

I have the honor to submit the following report upon the condition of the collections in the several departments of the State Museum of Natural History, with a general statement of the work done in each department during the past year:

The collections constituting the State Museum are all in good condition, and, so far as there are cases for their accommodation, are properly arranged. In this respect, however, we are not so far advanced as I had anticipated at the beginning of the year. For a complete and systematic arrangement of the materials which we possess, and for those which are constantly accumulating, we need additional cases. For carrying out this object, I communicated, with your approval, a memorial to the Commissioners of the Land Office, soon after the last annual meeting of the Regents.

This memorial was accepted by these officers, and the recommendation made, but from some cause the order for constructing the cases was not given in time to make them available for use, as I had hoped, previous to the report of this year.

In consequence of this delay, the intended rearrangement of the geological collection occupying the wall cases has not yet been made.

The entire rearrangement of the mineralogical collection, and the contemplated arrangement of a special collection of iron ores, for which we have a large amount of material, cannot be made until the new cases are completed.

Other collections in all the departments remain unarranged, for want of proper cases, now in progress of construction, in which to display them.

I believe, however, that I may confidently anticipate that the cases heretofore proposed, and which are intended for the extension of every one of the departments of the Museum, will be completed,

and the collections arranged in them, during the present and coming year.

A list of the additions in each one of the departments will be found appended to this report.

DONATIONS TO THE MUSEUM.

In the Zoölogical Department we have received contributions from thirteen individuals, and among these, the very important one, from Mr. Temple Prime, of a suite of the type specimens of the Mollusca of Long Island, a list of which is herewith communicated.

Two skins of Elk, donated by Prof. H. A. Ward, of Rochester, are an interesting acquisition to the Museum, giving us specimens of one of the larger mammals native to the State, but long since extinct within its borders. These skins are already mounted, and will be placed in their proper position in the Museum during the present month.

In the Botanical Department we have donations from seventeen contributors, and collections by exchange from others.

To the Geological and Mineralogical collections, we have donations from twenty-one contributors.

In the department of Archæology and Ethnology, we have donations from five persons.

To the Library, we have donations from individuals and societies to the number of nine, giving an addition of fifty-three volumes and pamphlets.*

The appended lists, under the head of additions to the State Museum, and pages following, contain full information in regard to each of the above.

PURCHASE OF COLLECTIONS.

Additions to the Zoölogical Collection by purchase.

The series of Skeletons of New York Mammals, Birds, Reptiles and Fishes, prepared under the direction of Prof. H. A. Ward, of Rochester, was referred to in my last report, and a list of the species communicated at that time. These have in part been temporarily arranged in two cases in the library room of the Museum, and the remainder left stored in the basement of the building until permanent provision can be made for their exhibition.

* In connection with this subject, and in consideration of the few returns received for the large number of our Annual Reports distributed, I have made a separate communication to the Regents.

Another series of twenty-seven Skeletons of New York Vertebrata, a list of which will be found among the additions to the Museum, has lately been received from Prof. Ward. These will prove a very valuable accession to this department of the Museum.

I am further advised by Prof. Ward, that he has in preparation Skeletons of Elk and Buffalo, which will be added to the Museum during the year.

I would most earnestly urge upon the Regents the importance of the continuation of the small annual appropriation for the object of completing the collection of Skeletons, now so fairly begun. Those already obtained will soon constitute an attractive and very instructive series.

Additions to the Geological and Palæontological Collections by purchase.

From Prof. James Orton, 1,200 fossil shells from the Tertiary beds of the Upper Amazon.

A collection of 151 specimens of fossil plants, principally Ferns, occurring in concretions in the coal measures of Morris, Illinois.

The Gebhard Collection.—The Legislature, by an appropriation of \$3,500, chapter 715 of the Laws of 1871, directed the purchase of the entire collection of John Gebhard, Jr., of Schoharie, upon the condition that a committee of three persons named, should certify to its value and importance for the State Museum.

An examination was made according to this requirement, and a certificate, with a general schedule of the nature and contents of the collection, was furnished to the Comptroller, who then authorized the purchase. The collection was delivered at the State Museum on the 4th day of December last.

This collection embraces large numbers of fossils from the formations in the neighborhood of Schoharie, many of which are desirable for the State Museum, and the remainder may be used in exchange, or for supplying such institutions of learning as the Regents may direct. For further information, I append a copy of the schedule communicated to the Comptroller, with a memorandum of the boxes and packages delivered at the Museum.

I reported last year the purchase of a collection of fossils and minerals from Col. E. Jewett, and a collection of valuable minerals, mostly crystals, formerly a part of the cabinet of the late Dr. E. Emmons. These collections were acquired by money advanced by

Hon. Erastus Corning, in the expectation that the Legislature would refund the same by an appropriation at the session of 1871. For some reason this was not done, and it becomes necessary to make another application to the Legislature for that object.

COLLECTIONS MADE BY THE ASSISTANTS OF THE MUSEUM.

The collections made in the Botanical Department are extensive and valuable. Mr. Peck will make a special report upon these, and I need not enumerate them in this place.

The collections in Geology and Palæontology have been quite extensive during the year.

Mr. Andrew Sherwood, who has been engaged under my direction in tracing the limits of the Catskill group, and in collecting fossils from those rocks and from the Chemung group, has sent in seven boxes, principally of fossils, with some rock specimens.

Mr. Herbert H. Smith, employed as a collector, has sent in twenty boxes of fossils from the Hamilton group, collected along the shores of Cayuga Lake.

Mr. Geo. B. Simpson has been temporarily employed as field assistant, and has made extensive collections in the Hamilton group at Earlville, in Madison county, and at Pratt's Falls, Pompey Hill and Delphi, in Onondaga county. More especial attention has been given to collecting the Lamellibranchiate shells which occur in these localities.

FIELD INVESTIGATIONS.

I have heretofore communicated the results of some field investigations in the southern part of the State, having for their object the better determination of the limits of certain formations in that region.

These observations have been made by myself in the intervals of other work, or by persons temporarily employed by me; from the limited time devoted to the examination, it has been impossible to present the results in such a form as I could wish.

The extent and even the existence of the Catskill red sandstone within the limits of the State, is a subject which has heretofore been discussed and questioned on very meager observations; and to reassert what had before been stated by the New York geologists, was adding nothing to our knowledge on the subject. As I have before stated, we found red rocks within the limits of the Chemung, and even as low as what appears to be the horizon of the Portage group; but

these beds are not persistent. The difficult problem was to find the means of tracing a line or limit between the Chemung and Catskill formations, which could be recognized either by lithological or by palæontological characters.

With a view to a continued and connected series of observations upon these rocks, I engaged the services of Mr. Andrew Sherwood, of Mansfield, Pennsylvania, who had already considerable knowledge of these formations, to trace the outcrop and limits of the Catskill group.

Mr. Sherwood has devoted the entire season to this work, and to the collecting of fossils, and has made very satisfactory progress towards a solution of some of the difficulties which have heretofore encompassed the subject. It has been more clearly shown that the red rocks, alternating with the higher part of the Chemung group, do assume the character of the Catskill group; and although the latter is a very distinct and well marked formation, its limits may not always be readily recognized on the borders of the underlying formation.

In many localities there will likewise be some difficulty in defining the upper limits of the Catskill group, at its junction with the sandstones of the formation known in the geology of Pennsylvania as the Vespertine formation, or No. X of the geological survey of that State.

An example of the obstacles to be met with in tracing the limits of these formations may be mentioned in the fact, that soon after beginning the field work, Mr. Sherwood discovered a thin band of gray sandstone, charged with well known Chemung fossils in the midst of the red sandstone, and 150 feet above a line which had been heretofore considered as the established base of the Catskill formation. This band, only a foot in thickness where discovered, is not likely to be continuous with the great mass, and we are elsewhere left without evidence to guide in conclusions upon the limits of the group.

In another instance a mass of red beds, 100 feet in thickness, were found within the limits of the Chemung group proper.

These facts prove that the conditions which finally prevailed, giving origin to the great mass of red and gray rocks of the Catskill formation, began at a much earlier period, but were intermitting in their action and local in their effects for a considerable period.

I believe we shall soon be able to define, with as much accuracy

as is practicable without the aid of better maps, the limits of the Catskill group. My own observations lead me to believe that this formation, so widely expanded in Pennsylvania, will be found to enter the eastern part of the State of New York in the form of three low synclinals, the largest one of these forming the Catskill mountain proper, with the lower and narrower ones lying to the westward, constituting a portion of the same range. This position of the formation is the one indicated by me in the Introduction to Vol. III, Palæontology of New York. The eroded anticlinals which expose the Chemung group, have been those parts of the country usually examined in the Catskill mountain region; and with this structure understood, it is easy to see how an observer may travel upon the Chemung rocks from the northern part of Delaware county to the southern line of the State, or even for considerable distance into Pennsylvania, without becoming aware of the existence of the higher formation.

I hope by the end of another year to be able to communicate, in a more definite form, our knowledge of the limits of the geological formations in the south-eastern counties of the State.

The collections of Mr. Herbert H. Smith have been made both for the object of adding to our Lamellibranchiata from the Hamilton group, and for tracing the range of species in a vertical and horizontal direction.

There is also another object to be finally attained by such collections, which I may indicate in this place.

The greater part of these fossils, during their existence, were essentially littoral in their habits, but in this respect certain genera and species vary in their conditions of life. We find some beds or zones of strata charged with great numbers of a few species, while a succeeding bed, consisting of harder or softer material, may be filled with species and genera for the most part quite distinct from those below or above. Another fact is also to be noticed. With certain of these lamellibranchiate forms there are Brachiopods, while with others there are none, or rarely a few individuals. Moreover, as we go westward, we find the Lamellibranchiata disappearing, and the Brachiopoda largely prevailing; while the strata, before consisting of alternating beds of hard and soft material, have become more homogeneous, and consist mainly of soft, calcareous shales.

Now, these alternations of hard and soft beds, or beds of coarse and fine materials, indicate more than the simple term expresses.

We have seen, from the remains of a Palæozoic forest discovered last year near Gilboa, that during the period of the Hamilton and Chemung groups, the land was encroaching upon the sea; not simply by extending itself seaward in accumulations, but also by the process of alternate elevation and subsidence. The remains of the forest of *Psaronius* had been again submerged and covered by beds bearing marine forms.

During this period, while one portion of the coast became elevated above the water-line, the adjacent ocean-bed or littoral area was also extended; because the submarine portion likewise participated in the movement. As the elevation went on, the portion occupied by littoral species became essentially dry land, and the area of littoral species was pushed farther seaward; the deposits from the nearer shore, which were of coarser texture, covered the finer mud with its living forms and supported a new fauna.

In this manner a fauna, at one time inhabiting a belt in proximity to the shore line, may, by the gradual elevation of the coast, slowly extend seaward, accompanied all the time by the same kind of sediments and similar physical conditions; thus encroaching upon the area of and gradually covering the deeper sea forms of animal life.

The reverse of this movement will take place when the coast line subsides; for the source of sediments becoming farther removed, the water deepening, and the finer muds coming in, make the conditions unfavorable for littoral species; while those of the deeper sea-bed invade the area temporarily occupied by the littoral forms, and follow shoreward the slowly subsiding land. In this way occur the alternating beds of coarser and finer sediments, charged with the faunal remains which, when living, were adapted to the conditions existing during the deposition.

By the careful collection and study of the fossils which occupy the successive beds of different sediments, we may be able to attain at least some proximate knowledge of the successive periods of elevation and subsidence of the coast line, during a given geological period. It seems to me, moreover, that by such critical study and by noting the nature and thickness of each of these distinct beds, we may be able to indicate the longer or shorter continuance of the periods of elevation or subsidence, of which we trace the final result in the permanent extension of the land.

To accomplish such determination as shall be of any value, requires a long series of observations and collections, to be both carefully

compared and studied; and the fossils must be studied also in connection with the nature of the sediments containing them.

I have here merely indicated the manner in which we may arrive at these results, for without doubt the principle here enunciated is the fundamental one in producing these alternations of beds, with the accompanying and consequent alternation of faunæ in the sedimentary formations.

While giving especial attention to the south-eastern part of the State, I have collected some facts relative to the geological formations containing the iron ores of St. Lawrence and Jefferson counties, which go to confirm the views originally expressed by Mr. Vanuxem, that their geological age is more recent than the Laurentian of the Adirondacks.

GENERAL WORK OF THE MUSEUM.

The changes contemplated in the arrangement of the collections have not been carried out for want of cases, as already indicated.

In the Botanical Department, Mr. Peck's special report will indicate the work done, without the necessity of repetition in this place.

In the Zoölogical Department, the collection of Skeletons already referred to have been partially arranged, and as far as our present means will permit.

The labeling of the Gould Collection of Shells, has been undertaken and nearly completed by Mr. Lintner. The labels accompanying the species have been copied and the localities added when this could be done by reference to original catalogues, with lists of species. These labels have been attached to tablets accompanying each tray, where they can be readily seen, while the specimens are arranged in such positions as to give opportunity of making comparison and study of the species. The collection requires a thorough revision to bring it up to the requirements of the present condition of the science.

The collections of Tertiary shells, purchased of Prof. Orton, have been arranged in their proper relation with the Tertiary fossils on the second floor of the Museum.

Mr. Whitfield has been occupied for a portion of the time in labeling collections already in the Museum, and for a large part of the year in cleaning and preparing fossils which are to be placed in the Museum, and in other work incident to or in connection with distribution, of which I may mention the following:

The collections of the Fairfield Academy were received at the Museum, to be labeled and returned. By the suggestion of the principal, Prof. Brownell, the duplicates, some forty or fifty specimens mostly of calciferous sandstone, were retained for distribution to other academies. The collection was labeled and returned, together with the addition of sixty species of fossils from the duplicate collections of the Museum.

A collection of seventy species of fossils was sent to the Lowville Academy at the request of Dr. F. B. Hough, one of the trustees of that institution.

A collection almost entirely of minerals, consisting of more than 1,000 specimens, received from the Rome High School, has been labeled, repacked, and is ready for returning.

Numerous small collections have been labeled for individuals seeking information of minerals and fossils.

The measurement and drawing of plans and preparation of specifications for new cases have consumed considerable time of Mr. Whitfield and myself.

During the year more than one hundred applications for information regarding fossils and minerals have been made at the Museum. Many of these are answered verbally, others by a simple letter, while a few have required more time and more detailed explanation. I am sorry to say that not a few of these supposed valuable minerals have proved to be of yellow or brown mica and iron pyrites.

I am, very respectfully,

Your obedient servant,

JAMES HALL.

ALBANY, *January* 10, 1872.

ADDITIONS TO THE STATE MUSEUM DURING THE YEAR 1871.

I. TO THE ZOÖLOGICAL DEPARTMENT.

I. By Donation.

From SIMON J. SCHEMERHORN, Schenectady, N. Y.

A Great Horned Owl (*Bubo Virginianus* Bonap).

From WILLIAM SCHOONMAKER, Cedar Hill, N. Y.

A Buff-breasted Shelldrake (*Mergus merganser*).

An albino Barn Swallow (*Hirundo horreorum* Barton).

From R. BARHYDT, Albany, N. Y.

A specimen of *Gallinula galeata* Bon., shot in Clarksville, Albany county, N. Y.

From JAMES H. LINACRE, Albany, N. Y.

A blue-spotted Salamander (*Plethodon glutinosus* Toch.), taken on the sidewalk in Albany.

From J. J. ACKER, Albany, N. Y.

Two specimens of Banded Proteus (*Menobranchnus lateralis*), from the Hudson river at Troy.

From FREDERICK McCLOY, Albany, N. Y.

Skull of a Rat (*Mus decumanus* Pallas).

From Col. RICHARD J. DODGE, Fort Lyon, Colorado.

Skins of two Antelopes (*Antilocapra Americana*), and three skulls.

From TEMPLE PRIME, New York.

A suite of type specimens of the Mollusca of Long Island, N. Y., as per list of Sanderson Smith and Temple Prime, given in the Annals of the Lyceum of Nat. Hist. of N. Y., vol. ix, 1870.

From WM. C. BAILEY, M. D., Chatham, N. Y.

Shells from near Foocho, China, of three species, viz.: *Cytherea lusoria*, *Tapes Indica* and *Cyrena fluviatilis*.

From H. W. LOBDELL, Brownstown, Wayne Co., Mich.

Specimens, in alcohol, of the "Colorado Potato Bug" (*Doryphora decem lineata* Say sp.), collected at Brownstown.

From Rev. J. L. ZABRISKIE, New Baltimore, N. Y.

Gordius varius Leidy, ♀ (eight inches long, of a yellow-brown color), from New Baltimore.

From MICHAEL A. WANTZ, New Scotland, N. Y.

A Hen's Egg, weighing $4\frac{3}{4}$ ounces, and measuring in its circumferences 7 and $8\frac{1}{2}$ inches.

From Prof. HENRY A. WARD, Rochester, N. Y.

Two Skins of Elk (*Cervus Canadensis*).

II. By Purchase.

Twenty-seven mounted Skeletons of New York Vertebrata, prepared under the direction of Prof. Henry A. Ward, Rochester, N. Y., as follows:

MAMMALIA.

Vulpes fulvus Rich. (Red Fox), ♀. Byron, N. Y.

Erethizon dorsatus Cuv. (White-haired Porcupine). North. N. Y.

Didelphys Virginianus Shaw. (Opossum), ♂ and ♀. West. N. Y.

Fiber Zibethicus Cuv. (Musk Rat), ♂. Genesee river, Rochester.

Sciurus Carolinensis Gm. (Gray Squirrel), ♂. Wyoming, N. Y.

S. Carolinensis var. *niger* Say. (Black Squirrel). Wyoming, N. Y.

Sciurus Hudsonius. (Red Squirrel), ♂. Western N. Y.

AVES.

Bubo Virginianus Bonap. (Great Horned Owl). Webster, N. Y.

Tringa rufescens Viel. (Buff-breasted Sandpiper). Long Island.

Philohela minor Gray. (American Woodcock). Monroe Co., N. Y.

Corvus Americanus Aud. (Common Crow). Rochester, N. Y.

Rhyncops nigra Linn. (Black Skimmer). Long Island, N. Y.

Alcedo Alcyon Linn. (Belted Kingfisher). Genesee river, N. Y.

PISCES.

Centropristes nigricans Cuv. et Val. (Black Sea Bass). L. I. Sound.
Amia occidentalis De Kay. (Western Mud Fish). Lake Ontario.
Elacate Atlantica Cuv. et Val. (Northern Crab-Eater). N. Y. Bay.
Lepidosteus Huronensis Rich. (Gar Pike). Irondequoit Bay.
Accipenser rubicundus Lesu. (Lake Sturgeon). Irondequoit Bay.
Morrhua vulgaris Cuv. (Codfish). Atlantic Ocean.
Lota maculosa Kirt. (Spotted Burbot). Lake Ontario, Monroe Co.

REPTILIA.

Chelonia Midas Schw. (Green Turtle), ♀. Atlantic Ocean.
Chelydra serpentina Schw. (Snapping Turtle), ♀. Lake Ontario.
Graptemys geographica Ag. (Geographic Terrapin), ♀. Sodus Bay, N. Y.
Crotalus durissus Linn. (Northern Rattlesnake). Rochester, N. Y.
Menobranchus lateralis. (Banded Proteus). Genesee river, N. Y.
Rana mugiens Dum. et Bibb. (Bull Frog). Irondequoit Bay, N. Y.

II. TO THE BOTANICAL DEPARTMENT.

I. By Donation.

From Miss S. P. MONKS, Cold Spring, N. Y.

Specimens of *Asplenium Rutamuraria* L.

From Miss E. BAILEY, Albany, N. Y.

Specimens of *Utricularia vulgaris* L.

From Miss M. L. WILSON, Buffalo, N. Y.

Eight species of Lichens, of which two are new to the State.

From E. L. HANKENSON, Newark, N. Y.

Specimens of *Charophyllum procumbens* Lam. and of *Carex Careyana* Dew.

From S. N. COWLES, Otisco, N. Y.

Specimens of *Carex capillaris* var. *elongata* Olney, and *Botrychium simplex* Hitch.

From R. P. WHITFIELD, Albany, N. Y.

Specimens of *Lactarius Indigo* Schw.

From J. A. LINTNER, Albany, N. Y.

Specimens of *Peridermium Cerebrum* Pk.

From MUNSON PECK, Sandlake, N. Y.

Specimens of *Clavaria rufescens* Schæff.

From Rev. J. L. ZABRISKIE, New Baltimore, N. Y.

Five species of Fungi, two of which are new to the State.

From VERPLANCK COLVIN, Albany, N. Y.

Six species of Flowering Plants.

From E. C. HOWE, M. D., New Baltimore, N. Y.

Fifteen species of Plants, six of which are new to the State.

From W. R. GERARD, Poughkeepsie, N. Y.

Fifteen species of Fungi, six of which are new to the State.

From Hon. G. W. CLINTON, Buffalo, N. Y.

Nineteen species of Plants, eight of which are new to the State.

From HENRY GILLMAN, Detroit, Mich.

Specimens of *Lamna trisulca* L., and *L. polyrrhiza* L.

From C. F. AUSTIN, Closter, N. J.

Ten species of Plants, two of which are new to the State.

From L'UNIVERSITE ROYALE DE NOWEGE, à Christiana.

Specimens of twenty-two species of Lichens.

From ORVILLE HODGE, Argusville, N. Y.

A section from a Hemlock Tree, showing the method and progress of the filling up, during twenty-five years of growth, of a cutting in the tree, five inches across.

II. By Exchange.

From E. S. MILLER, Wading River, N. J.

Five species of Flowering Plants, new to the State,

From S. T. OLNEY, Providence, R. I.

Thirty-six species of Carices, some of them rare and interesting.

III. By Collection.

By the BOTANIST.

Two hundred and twenty-three species of Plants new to the State.

III. TO THE GEOLOGICAL AND MINERALOGICAL DEPARTMENT.

I. By Donation.

From H. TUDOR BROWNELL.

Calcareous Spar with copper pyrites: Sheffield, Mass.

From LEWIS DREYER, Albany, N. Y.

A three-quarter inch cube of iron pyrites.

From D. M. WOODWARD, North Troy, N. Y.

Foliated Talc, from North Troy, N. Y.

From Col. RICHARD J. DODGE, Fort Lyon, Colorado.

Petrified Wood and Vesicular Lava from the Rocky Mountains.

From S. W. CLARK, Willsborough, N. Y.

A dressed block of Trenton Limestone ($9 \times 9 \times 13$), from quarries furnishing the foundation stone for the New Capitol: Willsborough, Essex county, N. Y. (No. 96.) Received in 1870.

From ORSON RICHARDS and D. LYNCH, Minerva, N. Y.

A polished Shaft of Serpentine Marble, two feet in height, $7\frac{1}{2}$ inches square at base, and 6 inches square at apex: Minerva, Essex county, N. Y. (No. 116.)

From STANTON CADY, Albany, N. Y.

A block (No. 118) of Red Granite: Sing Sing, N. Y.

From JOHN M. SCRIBNER, Middleburgh, N. Y.

A block (No. 119) of fine-grained Sandstone ($20 \times 10 \times 15$), from flagstone quarry, near Middleburgh.

From D. PARMETER.

A block (No. 120) of Potsdam Sandstone ($16 \times 12 \times 12$ inches), with four sides dressed, and two showing rock fracture.

From Hon. A. R. ELWOOD, Warren, N. Y.

Iron pyrites, of peculiar crystalline form : Warren, Herkimer county, New York.

From R. K. SMITH, Gouverneur, N. Y.

Carbonate of Magnesia, etc., from a large deposit of the same, and clay, supposed by the donor to be fuller's earth : Gouverneur, N. Y.

From H. VEEDER, Plattsburgh, N. Y.

Two specimens of Iron Ore, from the Hassey and Howe Iron Mine at Ferrona, Clinton county, N. Y., formerly known as the "Arnold Ore Bed."

From PETER C. BROWER, Albany, N. Y.

Nodules of iron pyrites from Shark river, N. J.

From H. T. HICKOK, Amsterdam, N. Y.

Specimens of Utica Slate containing Graptolites and some minute Brachiopods : Amsterdam, N. Y.

From E. H. PEASE, Albany, N. Y.

Vesicular lava, reported as found in Schoharie, N. Y., but probably from the Rocky Mountains.

From MORVEN M. JONES, Albany, N. Y.

Hematitic Iron Ore, from the farm of Hon. U. H. Stoddard, Alford, Berkshire county, Mass.

From F. A. UTTER, Whitesboro, Oneida county, N. Y.

Salt from the shores of Salt Lake, Utah.

From S. B. WOOLWORTH, LL. D., Albany.

A block of Granite, about $6 \times 6 \times 5$ inches, dressed on three faces; from Concord, N. H.

Specimens of ore yielding gold \$100, silver \$50 per ton, and copper 10 per cent; ore yielding silver \$300 per ton : Georgetown, Colorado.

From HENRY A. HOMES, N. Y. State Library.

Cannel coal from Ohio.

From Prof. W. C. CLEVELAND, Ithaca, N. Y.

Orthis impressa Hall, from beds at Ithaca, 350 feet above the town, on East Hill.

Specimens of *Orthis*, *Atrypa* and *Lingula*, from the Chemung Group at Ithaca.

From Hon. A. S. JOHNSON, Utica, N. Y.

Two specimens of Utica Slate, containing Trilobites, and one specimen showing the outer chamber of an *Orthoceras*.

From GEORGE ROE, Minersville, Essex county, N. Y.

Magnetic oxyde of Iron in octahedral crystals, imbedded in Feldspar.

From HENRY A. RILEY, of Montrose, Penn.

Twenty-six specimens of fossil plants from Montrose, Pa., and vicinity; twenty-eight specimens of fossils, etc., from Mt. Lebanon and vicinity; five specimens from the cretaceous rocks of Delaware.

From FRANK GRAVES, Camillus, N. Y.

A block of Selenite (Gypsum) from Camillus, Onondaga county, N. Y.

II. By Exchange.

From Prof. D. S. MARTIN, Rutger's Female College, N. Y.

Fossil bones and other phosphates from South Carolina, consisting of teeth of *Carcharodon* and *Oxytrina*; bones of *Manatee*, etc.

Specimen of Serpentine containing *Eozoön Canadense*: Thurman, N. Y.

III. By Collection.

Of the DIRECTOR.

Glacial Scratches from beds of Trenton Limestone, at Tribe's Hill, New York.

Of the ASSISTANTS.

Extensive collections of fossils and a number of rock specimens from the Chemung and Catskill groups: By Andrew Sherwood.

Large collections of fossils (twenty boxes), consisting principally of lamellibranchiate shells, from the Hamilton group on the shores of Cayuga lake: By Herbert H. Smith.

Large collections of Lamellibranchiata from the Hamilton group in Madison and Onondaga counties: By George B. Simpson.

IV. By Purchase.

Twelve hundred Fossil Shells from the Tertiary beds of the Upper Amazon.

The Gebhard Collection. (See Schedule appended.)

A collection of Fossil Plants (151 specimens), principally Ferns, occurring in concretions in the coal measures at Morris, Illinois.

IV. TO THE DEPARTMENT OF ARCHEOLOGY AND ETHNOLOGY.

By Donation.

From Capt. McC. NETTERVILLE, 21st U. S. Infantry.

Indian Manufactures of the Pinal Apache Indians, from Pinal Mountains, Arizona, consisting of:

Bow and seven arrows, flint and metal tipped.

Quiver of deer-skin.

Water-flask of wicker work coated with Mesquite gum.

Deer-skin moccasins.

Deer-skin pouch and paint bag.

Deer-skin pouch and bells.

Saddle-cloth of skin.

Deer-skin skull cap.

Pack of playing cards made of raw-hide.

From D. J. WHITNEY, Gouverneur, N. Y.

An Indian hatchet of green-stone, found in Morristown, St. Lawrence county, N. Y.

From HAMILTON COTTER, Albany, N. Y.

Piece of a tombstone penetrated by a cannon-ball shot by the British at the battle of Monmouth, N. J., June 28th, 1778.

From DERRICK V. LEVERSEE, Brunswick, N. J.

An Indian stone pestle, twenty-two inches in length.

From GEORGE W. BROWER, Schenectady, N. Y.

Three Indian arrow-heads.

V. TO THE LIBRARY.

I. By Donation.

From the CHICAGO HISTORICAL SOCIETY.

- Transactions of the Wisconsin State Agricultural Society. Vol. VIII, 1869. Madison, Wis., 1870. 8vo.
- History of Illinois, from 1778 to 1833 ; and Life and Times of Ninian Edwards. By Ninian W. Edwards, Springfield, Ill., 1870. 8vo.
- Eleventh Annual Statement of the Trade and Commerce of Chicago, for the year ending March 31st, 1869. By John F. Beaty, Secretary. Chicago, 1869. Pamph., 8vo., pp. 172.
- Seventh Annual Report of the Board of Public Works to the Common Council of the city of Chicago. Chicago, 1869. Pamph., 8vo., pp. 133.
- Eighth Annual Report of the Board of Public Works to the Common Council of the city of Chicago. Chicago, 1869. Pamph., 8vo. pp. 207.
- First Annual Report of the Board of Trustees of the Illinois Industrial University, for the year ending June 5, 1869. Springfield, 1868. Pamph., 8vo., pp. 323.
- Second Annual Report of the Board of Trustees of the Illinois Industrial University, for the year ending June 5, 1870. Springfield, 1869. Pamph., 8vo., pp. 372.
- Catalogue of the Illinois Normal University for 1861-62. Bloomington, Ill., 1862. Pamph., pp. 26.
- Catalogue do. for 1864-65. Bloomington, Ill., 1865. Pamph., pp. 36.
- Catalogue do. for 1865-66. " " 1866. " pp. 36.
- Catalogue do. for 1868-69. " " 1869. " pp. 47.
- Catalogue of Lake Forest Academy at Lake Forest, Ill., for 1869-70. Lake Forest, 1870. Pamph., 8vo., pp. 22.
- Department of Public Instruction, city of Chicago. Fifteenth Annual Report of the Board of Education for the year ending July 3, 1869. Chicago, 1869. Pamph., 8vo., pp. 315.
- Department of Public Instruction, city of Chicago. Sixteenth Annual Report of Board of Education, for the year ending July 1, 1870. Chicago, 1870. Pamph., 8vo., pp. 264.
- Catalogue of the North-western University at Evanston, Ill., for 1869-70. Evanston, 1870. Pamph., pp. 55.
- Report of the Wisconsin State Historical Society for the year 1869. Madison, Wis., 1870. Pamph., 8vo., pp. 104.

- Bulletin of the Wisconsin Academy of Science, Arts and Letters, April, 1870, No. 1. Madison, Wis., 1870. Pamph., pp. 24.
- The Last of the Illinois, and a Sketch of the Pottowatamies. By John Dean Caton, LL. D. Chicago, 1870. Pamph., pp. 36.
- Annual Report of the Regents of the Illinois Industrial University, made March 8th, 1870. Champaign, Ill., 1870. Pamph., pp. 10.

From CHARLES W. HUTCHINSON, Utica, N. Y.

- Natural History of New York, Part V. Agriculture, Vol. V. Insects of New York. By E. Emmons, M. D.

From the AUTHOR.

- Shipbuilding in Iron and Steel. By E. J. Reed, C. B., Chief Constructor of the Navy. London, 1869. 2 vols., 8vo.

From the REGENTS OF UNIVERSITY OF THE STATE OF N. Y.

- Seventy-eighth Annual Report of the Regents of the University of the State of New York. Albany, 1865. 8vo.
- Seventy-ninth Annual Report of the Regents of the University of the State of New York. Albany, 1866. 8vo.
- Eightieth Annual Report of the Regents of the University of the State of New York. Albany, 1867. 8vo.
- Eighty-first Annual Report of the Regents of the University of the State of New York. Albany, 1868. 8vo.
- Eighty-second Annual Report of the Regents of the University of the State of New York. Albany, 1869. 8vo.
- Eighty-third Annual Report of the Regents of the University of the State of New York. Albany, 1870. 8vo.

From the AUTHOR.

- Description of some new species of Fossils from the shales of the Hudson River Group in the vicinity of Cincinnati, O. By James Hall, LL. D. Oct., 1871. Pamph., 8vo.
- A Hand-Book on Silex. By Dr. Lewis Feuchtwanger, Chemist and Mineralogist. New York, 1871. 12mo.

From Dr. L. W. SCHAUFUSS, Dresden.

- Das Gräberfeld bei Gauernitz Vom Herausgeber. Dresden, 1871. Pamph., 8vo., pp. 24.

Notizen zum Gemälde G. Barbarelli's, genannt Giorgione: "Die Ehebrecherin," sowie zu G. Reni's Portrait des Jacobi und zweier Paolo Veronese, zur Zeit im Besitze von Dr. L. W. Schaufuss in Dresden.

Künstliche aus Glas gefertigte Actinien, Medusen und Mollusken. Dresden, 1869.

Catalog vorrätiger Säugethiere. Dresden, 1870.

Verkäufliche Skelette und Schädel. Dresden, 1871.

Nachstehend verzeichnete Europäische Käfer. 1865.

Coleoptern von Australien. Dresden, 1869.

Afrikanische Coleoptern. Dresden, 1870.

Europäische Coleoptern mit Einschluss von nord-afrikanischen, kleinasiatischen, russischen, etc. Verz. C, 1870; Verz. CI, 1870; Verz. CII, 1871.

Verkäufliche Exotische Vogelbälge. Dresden, 1870.

From the SOCIETY.

Sitzungs-Berichte der naturwissenschaftlichen Gesellschaft Isis in Dresden. Nos. 10-12, 1870. Nos. 1-3, 1871.

From L'UNIVERSITE ROYALE DE NORVEGE A CHRISTIANIA.

Bidrag til Kundskab om Christianiafjordens Fauna. II af Michael Sars. Christiania, 1870. Pamph., 8vo., pp. 114.

Christiania Omegns Phanerogamer og Bregner af A. Blytt. Christiania, 1870. Pamph., 8vo., pp. 103.

Om en i Sommeren, 1869, foretagen Entomologisk Reise gjennem Ringerike, Hallingdal og valders af H. Siebke. Christiania, 1870. Pamph., 8vo., pp. 71.

Crustacea amphipoda borealia et arctica auctore Axel Boeck. (Særskilt aftrykt af Vidensk.-Selsk. Forhandlinger for 1870.) Pamph., 8vo. pp. 200.

Bidrag til Norges Rovdyr og Rovfuglestatistik for Femaaret 1861-65. Af H. Rasch. (Særskilt aftrykt af Vidensk.-Selsk. Forhandlinger for 1868.)

Nye Dybvandscrustaceer fra Lofoten. Af G. O. Sars. (Særskilt aftrykt af Vidensk.-Selsk. Forhandlinger for 1869.) Pamph., 8vo., pp. 30.

Carcinologiske Bidrag til Norges Fauna, I. Mysider. Af G. O. Sars. Christiania, 1870. Pamph. quarto, pp. 64.

II. By Subscription.

The American Naturalist. Salem, Mass., 1870. Vol. IV. Nos. 11, 12. Vol. V, 1871.

The American Journal of Science and Arts. New Haven, 1871.

Third Series. Vol. I, Nos. 1, 2, 4, 5. Vol. II, Nos. 8, 9, 10, 12.

United States Railroad and Mining Register. Philadelphia, 1871. Vol. XV.

GEBHARD COLLECTION.

SCHEDULE OF CONTENTS, ETC.

[State of New York. Extract from the Supply Bill, chap. 715 of the Laws of 1871.]

“For John Gebhard, for the purchase, by the State, of his collection of minerals and fossils, the sum of three thousand five hundred dollars, to be paid on the certificate of James Hall, John V. L. Pruyn and Isaac W. Jackson that the collection is worth that sum, and should be purchased by the State.”

We, James Hall, John V. L. Pruyn and Isaac W. Jackson, above named, do hereby certify that we have this day met together and conferred in reference to the matters above mentioned; and we, the said James Hall and Isaac W. Jackson, do further certify that we have together personally inspected the collection of minerals and fossils of John Gebhard, referred to in the above act of the Legislature, now at his residence in the town and county of Schoharie; that the said collection comprises specimens in Mineralogy, Geology, Palæontology, Conchology, General Zoölogy, Ethnology, etc.

For a better appreciation of the nature and value of the collection, the following general memoranda have been prepared:

1. A general collection in mineralogy (American and European), comprising more than 1,000 specimens.

2. An extensive collection of minerals, comprising the varieties of Spar from the Schoharie caves, Sulphate of Baryta, Strontian (of which there are many polished specimens), amounting in all to more than 2,500 specimens.

3. Stalactites and Stalagmites, to the number of more than 100 specimens. Several of these weigh from 200 to 300 pounds each, and one mass of Sulphate of Strontian weighs over 300 pounds; also other specimens not especially enumerated.

4. Collections in Palæontology, enumerated under the head of the rock formations as follows:

TRENTON LIMESTONE.

Trilobites, Orthoceratites, and other fossils, approximately, fifty specimens.

UTICA SLATE.

Principally Trilobites, twenty-five specimens.

HUDSON RIVER GROUP.

Fossil shells and Trilobites in small specimens, and large slabs with *Sphenothallus*, in all 100 specimens.

MEDINA SANDSTONE AND CLINTON GROUP.

Fossil shells, Fucoids, etc., twenty-five specimens.

NIAGARA GROUP.

Trilobites and Encrinites, fifty specimens.

CORALLINE LIMESTONE.

Corals of various species, some of which are polished, 800 specimens. Trilobites, Cephâlopoda, Gasteropoda, Lamellibranchiata, Brachiopoda, at least 300 specimens.

TENTACULITE LIMESTONE.

Many Bryozoans and Corals ;
Crinoidea of remarkable forms, a few specimens ;
Aviculoid Shells, a few specimens ;
Brachiopoda of several forms ;
Orthoceras and Gomphoceras ;
Beyrichia, etc. In all 500 specimens.

LOWER PENTAMERUS LIMESTONE.

Crinoidea of several species ;
Cystideans of the genus *Lepadocrinus* ;
Corals and Bryozoans, many specimens ;
Brachiopoda of several genera and species in large numbers ;
Aviculoid shells ;
Gasteropoda and Cephalopoda in several forms ;
Trilobites in considerable number. Altogether amounting to more than 500 specimens.

SHALY LIMESTONE.

Corals and Bryozoans, many good specimens ;
Crinoidea, many of which are new forms ;
Aviculoid shells, some of rare and desirable forms ;

Brachiopoda, in several genera and large numbers of specimens ;
 Gasteropoda, many good and rare specimens ;
 Orthoceratites, some better specimens than before seen ;
 Trilobites, some very good specimens and rare forms ;
 Many large and fine slabs covered with fossils. Altogether more than 1,500 specimens.

UPPER PENTAMERUS LIMESTONE.

Crinoidal remains in large numbers ;
 Brachiopoda in several genera and many specimens ;
 Aviculoid shells of rare forms ;
 Gasteropoda in several species. Altogether between 400 and 500 specimens.

ORISKANY SANDSTONE.

Brachiopoda in several genera in large numbers, many of them showing interior structure ;
 Many large and fine slabs covered with shells ;
 Aviculopecten, some large and fine specimens ;
 Gasteropoda, of several species. In all, 800 to 1,000 specimens.

SCHOHARIE GRIT.

Corals and Bryozoans, some very good specimens ;
 Brachiopoda, many good specimens, and some excellent casts of the interiors ;
 Lamellibranchiate shells of several genera ; many specimens of Conocardium ;
 Gasteropoda, many good specimens ;
 Cephalopoda, many good Orthoceratites ; Gyroceras, Cyrtoceras, Trochoceras, among which are many good specimens ;
 Trilobites of the genera Dalmania, Phacops, Lichas, etc. Altogether from 1,000 to 1,500 specimens.

ONONDAGA AND CORNIFEROUS LIMESTONE.

Many Corals and Bryozoans ;
 Crinoidea, some rare forms ;
 Brachiopoda, some fine specimens ;
 Lamellibranchiata of the genera Pterinea, Aviculopecten, etc ;
 Gasteropoda, of several genera ;
 Cephalopoda, of the genera Orthoceras, Gyroceras, etc. ;
 Trilobites, of the genera Dalmania, Lichas, etc. Whole number from 700 to 800 specimens.

MARCELLUS SHALE.

Brachiopoda, of several species ;
Orthoceratites and Goniatites ;
Bones of fishes, etc. In all 200 specimens.

HAMILTON AND CHEMUNG GROUPS.

Brachiopoda of several species ;
Lamellibranchiata of the genera *Pterinea*, *Aviculopecten*, *Grammysia*, etc., some of them showing striation ;
Gasteropoda, many specimens ;
Cephalopoda, *Orthoceratites*, *Nautilus*, etc. ; some of the latter very fine ;
Many remains of plants ;
One *Stigmaria* ;
Two stumps of *Psaronius* and many fragments of the foliage of the same. Altogether about 1,000 specimens.

TERTIARY FOSSILS.

About one hundred specimens.

CLAYSTONES.

About five hundred specimens.

ABORIGINAL AND HISTORICAL OBJECTS AND IMPLEMENTS.

One hundred and fifty specimens.

RECENT SHELLS.

Marine, freshwater and land forms, estimated at 2,000 specimens.
Other specimens of the existing fauna, amounting to about 150 specimens.

These collections have been made by an intelligent person or persons. A great part of the palæontological collection has been made by Mr. Gebhard, whose knowledge of the rocks of Schoharie valley and of their fossil contents is well known among geologists. The value of the collection is greatly enhanced from the fact that it has been accumulated during a period of many years, and from a repeated and critical examination of all the rock formations, giving a most complete illustration of the ancient fauna and flora of that region.

The entire number of specimens in the collection will exceed 15,000, of which at least 7,500 are of fossils from the rock formations of the Schoharie valley.

And we, the said James Hall and Isaac W. Jackson, do further certify that the said collection is, in our judgment, worth the said sum of \$3,500, and ought, in our judgment, to be purchased by the State.

JAMES HALL.

I. W. JACKSON.

I have not been able to examine the collection of Mr. Gebhard above referred to (except as to a few specimens now at the State Museum), but from the above statement of Professors Hall and Jackson, in whose judgment I have entire confidence, as to the extent and character of the collection, I concur in their conclusion as to its value, and that it should be purchased by the State.

JOHN V. L. PRUYN.

ALBANY, *September 9, 1871.*

Memoranda of Packages, etc., of the Gebhard Collection, received at the State Museum, December 4th, 1871.

- | | |
|-----|-----------------------------------------------------------------------------|
| No. | 1. 1 bbl. Waterlime Group, Tufa, etc. |
| | 2. 1 bbl. Waterlime Group, Tufa, etc. |
| | 3. 1 bbl. Waterlime Group, cave specimens. |
| | 4. 1 bbl. Waterlime Group, with specimens of Schoharie Grit. |
| | 5. 1 bbl. Hudson River Group, with specimens of Upper Pentamerus Limestone. |
| | 6. 1 bbl. specimens of Barytes. |
| | 7. 1 bbl. Coralline Limestone, Corals, etc. |
| | 8. 1 bbl. Coralline Limestone, Corals, etc. |
| | 9. 1 bbl. Fibrous Carbonate of Lime, from Ball's Cave. |
| | 10. 1 bbl. Marcellus Shale, Septaria. |
| | 11. 1 bbl. Waterlime Group, Ball's Cave specimens. |
| | 12. 1 bbl. Lower Pentamerus, with some specimens of Shaly limestone. |
| | 13. 1 bbl. Corniferous Limestone, Corals, etc. |
| | 14. 1 bbl. Marcellus Shale, Septaria. |
| | 15. 1 bbl. Tentaculite Limestone, Glacial Scratches. |
| | 1 box Trenton Limestone. |
| | 3 boxes Hudson River Group. |
| | 1 box Medina Sandstone. |
| | 18 boxes Coralline Limestone, Fossils and Minerals. |
| | 8 boxes Waterlime Group, Fossils and Minerals. |

- 4 boxes Tentaculite Limestone.
- 4 boxes Lower Pentamerus Limestone.
- 7 boxes Shaly Limestone.
- 1 box Upper Pentamerus Limestone.
- 5 boxes Oriskany Sandstone.
- 8 boxes Schoharie Grit.
- 13 boxes Hamilton Group.
- 5 boxes Onondaga and Corniferous Limestone.
- 22 boxes American and foreign Minerals.
- 2 boxes Cretaceous and Tertiary Fossils.
- 6 boxes recent Corals and Shells.
- 1 box Bones of Vertebrata.
- 1 box Archaeological specimens.
- 1 box Claystones.
- 1 box Miscellaneous material.

Summary.

Barrels	15
Boxes	112
Packages	127

And unpacked material as below :

- 3 large Stalagmites, from Ball's Cave.
- 1 mass Carbonate of Strontian.
- 1 slab from Hudson River Group, showing mud-marks.
- 2 Fossil Stumps, from Gilboa, N. Y.
- 1 section of Fossil Stump, Gilboa, N. Y.
- 1 mass of Calcareous Tufa.
- 1 Shell of Galapagos Turtle.
- 1 Carapace of Turtle.
- 1 pair Moose Horns.
- 1 Elk Horn.
- 2 pairs Deers' Horns.
- 1 Deer Horn, embedded in a tree-trunk.
- 1 Skull and Horns of Mountain Sheep.
- 1 Skull and Horns of common Sheep.
- 1 pair Snow Shoes.
- 24 casts of Sharks' Teeth, illustrative of 2 monographs of
Fossil Squalidae, by R. W. Gibbes, M. D.
- 7 casts of Trilobites.
- 4 casts of Dythyrocharis, etc.

I certify that the barrels, boxes and unpacked material enumerated in the foregoing list have been delivered at the State Museum of Natural History, and have all been examined by me and catalogued by myself or under my inspection.

(Signed)

JAMES HALL,

Director State Museum Natural History.

LIST OF LONG ISLAND MOLLUSCA, PRESENTED TO THE STATE MUSEUM.

The report on the Mollusca of Long Island, N. Y., by Sanderson Smith and Temple Prime, published in the Annals of the Lyceum of Natural History of New York, in May, 1870, contains 182 species. The types of the species therein enumerated have been placed in the Museum of the School of Mines of Columbia College, New York. A suite of 106 species, as recorded in the list below, was contributed to the State Museum by Mr. Temple Prime, and another suite has been presented to the Long Island Historical Society.

LAMELLIBRANCHIATA.

<i>Anomia ehippium</i> <i>Linn.</i>	
<i>Anomia ehippium</i> <i>var. aculeata</i>	Greenport.
<i>Pecten irradians</i> <i>Lam.</i>	
<i>Arca transversa</i> <i>Say</i>	Greenport.
<i>Arca pexata</i> <i>Say</i>	
<i>Nucula proxima</i> <i>Say</i>	
<i>Leda limatula</i> <i>St.</i>	New York bay.
<i>Mytilus plicatulus</i> <i>Desh.</i>	
<i>Mytilus edulis</i> <i>Linn.</i>	
<i>Mytilus hamatus</i> <i>Say</i>	New York harbor.
<i>Unio complanatus</i> <i>Lea</i>	Riverhead.
<i>Sphærium partumeium</i> <i>Say</i>	Astoria.
<i>Sphærium securis</i> <i>Prime</i>	Greenport.
<i>Pisidium abditum</i> <i>Hald.</i>	
<i>Kellia planulata</i> <i>St.</i>	Greenport.
<i>Astarte lunulata</i> <i>Conr.</i>	Huntington.
<i>Astarte castanea</i> <i>Say</i>	Gardiner's Bay.
<i>Cardium pinnulatum</i> <i>Conr.</i>	Huntington.
<i>Cardium Mortoni</i> <i>Conr.</i>	
<i>Venus mercenaria</i> <i>Linn.</i>	
<i>Venus gemma</i> <i>Totten.</i>	
<i>Venus Manhattensis</i> <i>Prime</i>	Huntington.

<i>Cytherea convexa Say</i>	New York bay.
<i>Macra lateralis Say</i>	Greenport.
<i>Macra solidissima Chem</i>	
<i>Mesodesma arctatum Gould</i>	Easthampton.
<i>Donax fossor Say</i>	New York harbor.
<i>Cumingia tellinoides Conr</i>	Montauk.
<i>Tellina fusca Philippi</i>	Greenport.
<i>Tellina tenera Say</i>	
<i>Tellina tenta Say</i>	Greenport.
<i>Solemya velum Say</i>	Huntington.
<i>Solecurtus gibbus F. & H</i>	Coney Island.
<i>Solen ensis Linn</i>	
<i>Anatina papyracea Say</i>	Greenport.
<i>Cochlodesma Leanum Migh</i>	
<i>Lyonsia hyalina Conr</i>	Greenport.
<i>Pandora trilineata Say</i>	Montauk Point.
<i>Corbula contracta Say</i>	Greenport.
<i>Petricola pholadiformis Lam</i>	
<i>Saxicava arctica Desh</i>	Montauk Point.

PROSOBRANCHIATA.

<i>Chiton apiculatus Say</i>	Huntington.
<i>Tectura testudinalis Gray</i>	Glencove.
<i>Crepidula fornicata Lam</i>	
<i>Crepidula unguiformis Lam</i>	
<i>Crepidula convexa Say</i>	
<i>Paludina decisa Say</i>	Riverhead.
<i>Amnicola porata Gld</i>	Riverhead.
<i>Littorina rudis Gld</i>	
<i>Littorina litoralis F. & H</i>	
<i>Littorina irrorata Gray</i>	Huntington.
<i>Lacuna vineta Turton</i>	
<i>Rissoa minuta St</i>	Montauk Point.
<i>Cœcum pulchellum St</i>	Greenport.
<i>Cerithium Sayi Menke</i>	
<i>Cerithium Greenii C. B. Ad</i>	Canarsie.
<i>Cerithium nigrocinctum C. B. Ad</i>	Canarsie.
<i>Chemnitzia interrupta St</i>	Huntington.
<i>Chemnitzia trifida St</i>	
<i>Chemnitzia seminuda St</i>	Greenport.

<i>Natica heros</i> Say	
<i>Natica triseriata</i> Say	
<i>Natica duplicata</i> Say	
<i>Cerithiopsis terebellum</i> St.....	Huntington.
<i>Cerithiopsis Emersonii</i> St.....	Huntington.
<i>Ranella caudata</i> Say.....	
<i>Purpura lapillus</i> Lam.....	Montauk.
<i>Nassa trivittata</i> Say.....	
<i>Nassa vibex</i> Say	Northport.
<i>Nassa obsoleta</i> Say.....	
<i>Buccinum undatum</i> Linn.....	Montauk.
<i>Pyrula canaliculata</i> Brug.....	
<i>Pyrula carica</i> Brug.....	
<i>Columbella lunata</i> Sowb.....	
<i>Columbella avara</i> Say	
<i>Pleurotoma plicatum</i> C. B. Ad.....	Greenport.

TECTIBRANCHIATA.

<i>Bulla oryza</i> Tott.....	Huntington.
<i>Bulla canaliculata</i> Say	Little Gull Island.
<i>Bulla solitaria</i> Say	Huntington.
<i>Melampus corneus</i> St.....	
<i>Melampus denticulatus</i> St.....	Huntington.

PNEUMOBANCHIATA.

<i>Ancylus fuscus</i> C. B. Ad.....	East Marion.
<i>Gundlachia Stimpsoniana</i> Smith	Greenport.
<i>Limnea columella</i> Say	Coldspring.
<i>Limnea humilis</i> Say.....	Lloyd's Neck.
<i>Limnea desidiosa</i> Say.....	Astoria.
<i>Physa heterostropha</i> Say.....	
<i>Physa elongata</i> Say.....	Centerport.
<i>Planorbis trivolvus</i> Say	Riverhead.
<i>Planorbis bicarinatus</i> Say.....	Huntington.
<i>Planorbis armigerus</i> Say.....	
<i>Planorbis parvus</i> Say.....	
<i>Planorbis dilatatus</i> Gould.....	Southold.
<i>Helix arborea</i> Say	
<i>Helix indentata</i> Say.....	Huntington.
<i>Helix Binneyana</i> Morse	Huntington.
<i>Helix lineata</i> Say	Oyster Bay.
<i>Helix alternata</i> Say	Gardiner's Island.

<i>Helix labyrinthica Say</i>	Lloyd's Neck.
<i>Helix albolabris Say</i>	
<i>Helix thyroides Say</i>	
<i>Helix pulchella Müller</i>	
<i>Pupa pentodon Say</i>	
<i>Pupa fallax Say</i>	Coldspring.
<i>Vertigo milium Gld</i>	
<i>Vertigo simplex Gld</i>	Fisher's Island.

CATALOGUE OF EUROPEAN SHELLS, ETC.,

PRESENTED TO THE

STATE MUSEUM, BY THE SMITHSONIAN INSTITUTION, IN 1869.*

CRUSTACEA.

<i>Lepas anserifera</i>	British.
<i>Lepas sulcata</i>	British.
<i>Lepas vitrea</i>	British.
<i>Lepas striata</i> ? = <i>Hillii</i> <i>var.</i>	British.
<i>Lepas Hillii</i> = <i>Pentalasmis anatifera</i>	British.
<i>Balanus communis</i>	Scarborough.
<i>Balanus punctatus</i>	Scarborough.
<i>Balanus tintinnabulum</i>	Scarborough (imported).
<i>Clisia verruca</i>	British.
<i>Conchoderma virgata</i> = <i>Cineras vittata</i> <i>Lam.</i>	Scarborough.

VERMES.

<i>Vermilia triquetra</i>	British.
<i>Vermilia scabra</i> and <i>Balanus communis</i> on <i>Pecten opercularis</i>	British.
<i>Serpula solitaria</i>	British.
<i>Serpula complexa</i>	Scarborough.

CEPHALOPODA.

<i>Loligo vulgaris</i> <i>Linn.</i>	British.
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HETEROPODA.

<i>Ianthina Africana</i> <i>Rve.</i>	Canaries.
<i>Ianthina communis</i> <i>F. & H.</i>	Ireland.

* The mollusca are named according to "Forbes and Hanley's British Mollusca," from type specimens by P. P. Carpenter. The classification is in accordance with Chenu's "Manuel de Conchyliologie."

GASTEROPODA.

1st Sub-class — PROSOBRANCHIATA.

1st Order — PECTINIBRANCHIATA.

1st Sub-order — Proboscidifera.

<i>Murex erinaceus</i> Linn.....	British.
<i>Murex corallinus</i> Scach.	British.
<i>Murex brandaris</i> Linn	Mediterranean.
<i>Ocenebra Edwardsii</i> Payr.....	Mediterranean.
<i>Trophon craticulatus</i> Fahr.....	Greenland.
<i>Trophon clathratus</i> Linn.....	(W. Bean).*
<i>Trophon Barvicensis</i> Johns.....	(W. Bean).
<i>Fusus pulchellus</i> Phil.....	Mediterranean.
<i>Chrysodomus propinquus</i>	(W. Bean).
<i>Cantharus D'Orbigny</i> Payr.....	Mediterranean.
<i>Pisania maculosa</i> Lam.....	Mediterranean.
<i>Clathurella gracilis</i> Mont.....	Devon.
<i>Clathurella purpurea</i> Mont.....	British.
<i>Drillia elegans</i> Scach.....	Corunna (McAnd.).
<i>Lachesis minima</i> Mont.....	Villa franca.
<i>Lachesis minima</i> Mont.....	British.
<i>Lachesis? minima</i> var. (McAnd.).....	Mogador.
<i>Bela turricula</i> Mont.....	(W. Bean).
<i>Bela rufa</i> Mont.....	Herm.
<i>Bela brachystoma</i> Pfr.....	Mogador (McAnd.).
<i>Bela septangularis</i> Mont.....	Corunna (McAnd.).
<i>Mangelia attenuata</i> Mont.....	British.
<i>Mangelia nebula</i> Mont.....	British.
<i>Mangelia nebula</i> Mont.....	Corunna (McAnd.).
<i>Mangelia rugulosa</i> Phil.....	Mediterranean.
<i>Mangelia Ginnianiana</i> Scach.....	Palermo.
<i>Mangelia linearis</i> Mont.....	British.
<i>Mangelia costata</i> Mont.....	British.
<i>Buccinum undatum</i> Linn.....	British.
<i>Buccinum Humphreysianum</i> Ben.....	(W. Bean).
<i>Nassa corniculum</i>	Mediterranean.
<i>Nassa pygmæa</i> Lam.....	Malaga (McAnd.).
<i>Nassa pygmæa</i> Lam.....	British.
<i>Nassa grana</i> Lam.....	Mediterranean.

*The species thus indicated are without locality, but labeled "Received from W. Bean, Esq., Scarborough, Eng."

<i>Nassa incrassata</i> Linn.....	British.
<i>Nassa incrassata</i> Linn.....	Malaga (McAnd.).
<i>Nassa reticulata</i> Linn.....	British.
<i>Nassa trifasciata</i> A. Ad.....	Mediterranean.
<i>Nassa Cuvieri</i>	Mediterranean.
<i>Nassa plicata</i> Bolt.....	Red Sea.
<i>Nassa mutabilis</i> Linn.....	Mediterranean.
<i>Nassa variabilis</i> Phil.....	Mediterranean.
<i>Nassa variabilis</i> var. <i>Cuvieri</i>	Adriatic.
<i>Cyclops neritea</i> Linn.....	Mediterranean.
<i>Purpura lapillus</i> Linn.....	British.
<i>Purpura lapillus</i> Linn.—eggs.....	British.
<i>Mitra zebrina</i> D'Orb.	Canaries.
<i>Volutomitra ebena</i> Lam.....	Mediterranean.
<i>Volutomitra</i> ——— sp. ind.....	Canaries.
<i>Turricula Savignei</i> Payr.....	Mediterranean.
<i>Gibberula guanachas</i> D'Orb.....	Canaries.
<i>Gibberula minuta</i> Phil.	Villa franca.
<i>Gibberula miliaria</i> Lam.....	Canaries.
<i>Gibberula clandestina</i> Broc.....	Mediterranean.
<i>Gibberula epigrus</i> Rve.....	Mogador (McAnd.).
<i>Erato lævis</i> Don.	(W. Bean).
<i>Volvarina triticea</i> Lam.	Canaries.
<i>Columbella rustica</i> Linn.....	Mediterranean.
<i>Columbella reticulata</i> Lam.....	Mediterranean.
<i>Amycla Gervillii</i> Hanl.....	Mediterranean.
<i>Amycla minor</i> Phil.....	Mediterranean.
<i>Amycla corniculata</i> Lam.....	Mediterranean.
<i>Cithara Vanquellini</i> Payr.....	Mediterranean.
<i>Velutina lævigata</i> Linn.....	British.
<i>Lamellaria perspicua</i> Mont....	(W. Bean).
<i>Natica Sagrana</i> D'Orb.....	Mediterranean.
<i>Polinices olla</i> De Serres= <i>glaucina</i> Phil.	Loc.?
<i>Lunatia nitida</i> Don.....	Gibraltar (McAnd.).
<i>Lunatia nitida</i> var. <i>Valenciennesii</i> Payr.	Lessina.
<i>Lunatia intricata</i> Don.....	Mediterranean.
<i>Lunatia Guilleminei</i> Payr.....	Mediterranean.
<i>Scalaria communis</i> Lam.....	Mediterranean.
<i>Ringicula auriculata</i> Mont.....	Madeira.
<i>Chemnitzia</i> ? <i>pusilla</i> var. <i>gracilis</i> Phil...	British.

<i>Chemnitzia</i> ? <i>var. pusilla</i> <i>Phil.</i>	British.
<i>Chemnitzia scalaris</i> <i>Phil.</i>	British.
<i>Chemnitzia indistincta</i> <i>Mont.</i>	British.
<i>Chemnitzia</i> ? <i>var. fulvocincta</i> <i>Thom.</i>	British.
<i>Chemnitzia elegantissima</i> <i>Mont.</i>	British.
<i>Chemnitzia elegantissima</i> <i>Mont.</i>	Malaga (McAnd.).
<i>Chemnitzia fenestrata</i> <i>Jeffr.</i>	British.
<i>Odostomia acuta</i> <i>Jeffr.</i>	British.
<i>Odostomia rissoides</i> <i>Hanl.</i>	British.
<i>Odostomia conoidea</i> <i>Brw.</i>	British.
<i>Odostomia unidentata</i> <i>Mont.</i>	British.
<i>Odostomia turrita</i> <i>Jeffr.</i>	British.
<i>Odostomia truncatula</i> <i>Jeffr.</i>	Plymouth.
<i>Odostomia enlimoides</i> <i>Hanl.</i>	British.
<i>Odostomia plicata</i> <i>Mont.</i>	Dublin.
<i>Parthenia spiralis</i> <i>Mont.</i>	British.
<i>Eulima distorta</i> <i>Desh.</i>	British.
<i>Eulima polita</i> <i>Linn.</i>	British.
<i>Leiostraca subulata</i> <i>Don.</i>	British.
<i>Leiostraca bilineata</i> <i>Alder.</i>	British.
<i>Cerithiopsis tubercularis</i> <i>Mont.</i>	British.

2d Sub-order—**Toxifera.**

<i>Conus Mediterraneus</i> <i>Brug.</i>	Mediterranean.
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3d Sub-order—**Rostrifera.**

<i>Anserina pes-pellicani</i> <i>Linn.</i> (jun.).....	British.
<i>Luponia lurida</i> <i>Linn.</i>	Mediterranean.
<i>Trivia Europæ</i> <i>Mont.</i>	British.
<i>Trivia Europæ</i> <i>Mont.</i>	Gibraltar.
<i>Trivia pulex</i> <i>Sol.</i>	Mediterranean.
<i>Trichotropis borealis</i> <i>Sby.</i>	(W. Bean).
<i>Cerithium fuscatum</i> <i>Costa.</i>	Mediterranean.
<i>Cerithium vulgatum</i> <i>Brug.</i>	Mediterranean.
<i>Bittium reticulatum</i> <i>Da Costa.</i>	British.
<i>Bittium reticulatum</i> <i>Da Costa.</i>	Sicily.
<i>Bittium scabrum</i> <i>Oliv.</i> = <i>lima</i> <i>Brug.</i>	Mediterranean.
<i>Triphoris adversa</i> <i>Mont.</i>	British.
<i>Pirenella mamillata</i> <i>Phil.</i>	Sicily.
<i>Melanopsis prærose</i> <i>Linn.</i>	Elijah's well, Jericho.
<i>Melanopsis Sauleyi</i> <i>Bourg.</i>	Jericho (Tristam).

Melanopsis cariosa <i>Lam.</i>	Seville (McAnd.).
Melanopsis Dufourii <i>Fer.</i>	Xativa.
Melanopsis costata <i>Fer.</i>	Lake Meron (Trist.).
Melanopsis costata <i>var. fasciolata.</i>	Lake of Galilee (Beamont).
Melanopsis lentiginosa <i>Rve.</i>	Lebanon (Trist.).
Melanopsis eremita <i>Tr.</i>	Near Dead Sea (Trist.).
Littorina rudis <i>Donov.</i>	British.
Littorina rudis <i>Donov. var.</i>	Milford Haven.
Littorina Fabalis <i>Turt. ?=palliata var..</i>	(W. Bean).
Littorina tenebrosa <i>Mont. ?=rudis var..</i>	British.
Littorina saxatilis <i>Johnst. ?=rudis var..</i>	British.
Littorina tenebrosa = <i>Groelandica Chem.</i>	Greenland.
Littorina patula <i>Jeffr. ?=rudis var..</i>	British.
Littorina neritoides <i>Linn.</i>	British.
Littorina litorea <i>Linn.</i>	British.
Littorina striata <i>King.</i>	Azores (McAnd.).
Littorina litoralis <i>Linn.</i>	British.
Littorina palliata <i>Say.</i>	British.
Lacuna puteolus <i>Turt.</i>	British.
Lacuna pallidula <i>Da Costa.</i>	British.
Lacuna vineta <i>Turt.</i>	British.
Planaxis lineata = <i>pedicularis Lam.</i>	Canary Isl.
Rissoina Bruguieri <i>Payr.</i>	Mediterranean.
Rissoina ——— sp. ind.....	Canary Isl.
Rissoa violacea <i>Desm.</i>	Mediterranean.
Rissoa punctura <i>Mont.</i>	British.
Rissoa labiosa <i>Mont.</i>	British.
Rissoa labiosa <i>var. ventricosa Hanl.</i>	Dalmatia.
Rissoa semistriata <i>Mont.</i>	British.
Rissoa parva <i>Da Costa.</i>	British.
Rissoa parva <i>var. interrupta.</i>	British.
Rissoa costata <i>Desh. non Mont.</i>	Mediterranean.
Rissoa ? <i>rufilabrum var.</i>	Sea of Marmora.
Rissoa costulata <i>Risso.</i>	British.
Rissoa inconspicua <i>Ald.</i>	British.
Rissoa (Zippora) <i>auriscalpium Linn.</i>	Villafranca.
Alvania striatula <i>Mont.</i>	British.
Alvania calathus <i>Hanl.</i>	British.
Alvania buccinoides <i>Desh.</i>	Villafranca.
Alvania lactea <i>Mach.</i>	Vigo (McAnd.).
Alvania costata <i>Ad.</i>	British.

<i>Alvania costata</i> <i>Ad.</i>	Lancerote, Canary Isl.
<i>Alvania crenulata</i> <i>Mich.</i>	British.
<i>Alvania Beanii</i> <i>Hanl.</i>	British.
<i>Alvania</i> ? <i>Beanii</i> <i>var.</i> = <i>Rissoa cimex</i> <i>Phil.</i>	Villafranca.
<i>Alvania Montagui</i> <i>Payr.</i>	Villafranca.
<i>Alvania rufilabrum</i> <i>Leach.</i>	British.
<i>Alvania umex</i> <i>Linn.</i>	Mediterranean.
<i>Alvania crenulata</i> <i>Mich.</i>	Villafranca.
<i>Alvania Zellandica</i> <i>Mont.</i>	British.
<i>Alvania punctura</i> <i>Mont.</i>	Teneriffe (McAnd.).
<i>Alvania</i> ——— <i>sp. ind.</i>	Canaries (McAnd.).
<i>Onoba striata</i> <i>Mont.</i>	British.
<i>Acme lineata</i> <i>Drap.</i>	Scarborough.
<i>Barleia rubra</i> <i>Mont.</i>	British.
<i>Cingula cingillus</i> <i>Mont.</i>	British.
<i>Setia fulgida</i> <i>Ad.</i>	British.
<i>Skenea planorbis</i> <i>Fabr.</i>	British.
<i>Hydrobia ventrosa</i> <i>Mont.</i>	British.
<i>Hydrobia ulvæ</i> <i>Penn.</i>	British.
<i>Hydrobia Boissieri</i> <i>Benoit.</i>	Sicily.
<i>Paludina vivipara</i> <i>Linn.</i>	British.
<i>Bithynia tentaculata</i> <i>Linn.</i> (Pleistocene.)	Essex.
<i>Bithynia tentaculata</i> <i>Gray.</i>	British.
<i>Bithynia Leachii</i> <i>Shep.</i>	York.
<i>Valvata cristata</i> <i>Müll.</i>	British.
<i>Valvata piscinalis</i> <i>Müll.</i> (Fossil).....	Worcestershire.
<i>Turritella communis</i> <i>Risso.</i>	Mediterranean.
<i>Cæcum trachea</i> <i>Mont.</i>	British.
<i>Brochina glabra</i> <i>Mont.</i>	British.
<i>Phorus variegatus</i> <i>Risso</i> = <i>Richardi</i> <i>Payr.</i>	Mediterranean.
<i>Galerus Sinensis</i> <i>Linn.</i>	British.
<i>Galerus Sinensis</i> <i>Linn.</i>	Sicily.
<i>Pileopsis Hungaricus</i> <i>Linn.</i>	British.

2d Order—SCUTIBRANCHIATA. .

1st Sub-order—Podophthalma.

<i>Neritina fluviatilis</i> <i>Linn.</i>	British.
<i>Neritina fluviatilis</i> <i>Linn.</i>	Dalmatia.
<i>Neritina Prenostiana</i> <i>Par.</i>	River Kishon.
<i>Neritina Jordani</i> <i>Butl.</i>	Lake Merom.

<i>Neritina viridis</i> Linn.....	Lancerote (McAnd.).
<i>Phasianella pullus</i> Linn.....	British.
<i>Phasianella pullus</i> Linn.....	Mediterranean.
<i>Phasianella Vieuxii</i> Payr.....	Dalmatia.
<i>Bolma rugosa</i> Linn. (jun.).....	Mediterranean.
<i>Adeorbis subcarinata</i> Mont.....	British.
<i>Clanculus Berthelotti</i> D'Orb.....	Dalmatia.
<i>Clanculus turgidulus</i> Brac.....	Dalmatia.
<i>Calliostoma exiguus</i> Pult.....	British.
<i>Calliostoma crenulatum</i> Lam.....	Canaries (McAnd.).
<i>Calliostoma crenulatum</i> Lam.....	Dalmatia.
<i>Calliostoma ziziphinus</i> Linn. var.....	Mediterranean.
<i>Calliostoma striatus</i> Linn.....	British.
<i>Calliostoma striatus</i> Linn.....	Mediterranean.
<i>Calliostoma granulatum</i> Born.....	Dublin.
<i>Calliostoma polychroma</i> A. Ad.....	Dalmatia.
<i>Calliostoma Montagui</i> Gray.....	British.
<i>Calliostoma rufopunctatum</i> A. Ad.?=	
<i>Montagui</i> var.....	Dalmatia.
<i>Calliostoma millegranum</i> Phil.....	(W. Bean).
<i>Calliostoma Langieri</i> Payr.....	Dalmatia.
<i>Osilinus turbinatus</i> Bary.....	Mediterranean.
<i>Osilinus articulatus</i> Lam.....	Mediterranean.
<i>Osilinus lineatus</i> Da Cost.....	British.
<i>Gibbula cineraria</i> Linn.....	British.
<i>Gibbula cineraria</i> Mont.= <i>fumosa</i> Phil..	Mediterranean.
<i>Gibbula tumidus</i> Mont.....	British.
<i>Gibbula tumidus</i> Mont.....	Mediterranean.
<i>Gibbula calinota</i> A. Ad.?= <i>Adansoni</i> var.	Mediterranean.
<i>Gibbula venusta</i> A. Ad.?= <i>Adansoni</i> var.	Mediterranean.
<i>Gibbula umbilicatus</i> Mont.....	British.
<i>Gibbula umbilicatus</i> Mont. var.....	British.
<i>Gibbula fuscata</i> Gmel.= <i>umbilicaris</i> Phil.	Mediterranean.
<i>Gibbula varia</i> Linn.....	British.
<i>Gibbula Nassaviensis</i> Chem.=? <i>varia</i> var.	Mediterranean.
<i>Gibbula divaricata</i> Linn.....	Gibraltar.
<i>Gibbula Magus</i> Linn.....	British.
• <i>Margarita cinerea</i> Couth.....	Greenland (Morch.).
<i>Margarita undulata</i> Sby.....	Greenland (Morch.).
<i>Margarita helicina</i> Fabr.....	Greenland (Morch.).
<i>Haliotis tuberculata</i> Linn.....	British.

2d Sub-order—**Edriophthalma.**

<i>Fissurella nubecula</i> <i>Linn.</i> = <i>rosea</i> <i>Sby.</i> ...	Algiers (Hanley).
<i>Fissurella</i> (<i>Glyphis</i>) <i>reticulata</i> <i>Don.</i>	British.
<i>Emarginula reticulata</i> <i>Linn.</i>	(W. Bean).
<i>Emarginula rosea</i> <i>Bell.</i>	British.
<i>Cemoria Noachina</i> <i>Linn.</i>	(W. Bean).
<i>Dentalium dentale</i> <i>Linn.</i>	Corunna (McAnd.).
<i>Dentalium entalis</i> <i>Linn.</i>	British.
<i>Dentalium Tarentinum</i> <i>Lam.</i>	British.
<i>Patella cœrulea</i> <i>Phil.</i>	Isl. Christo, s. of Elba.
<i>Patella vulgata</i>	British.
<i>Patella athletica</i> <i>Bean.</i>	British.
<i>Patella athletica</i> <i>var. colorata</i>	British.
<i>Pilidium fulvum</i> <i>Müll.</i>	(W. Bean).
<i>Nacella lævis</i> <i>Pen.</i> ?= <i>Patella pellucida</i> <i>var.</i>	British.
<i>Nacella pellucida</i> <i>Linn.</i>	British.
<i>Chiton cinereus</i> <i>F. & H.</i>	British.
<i>Leptochiton asellus</i> <i>Chem.</i>	British.
<i>Leptochiton granoliratus</i> <i>var.</i>	Mogador (McAnd.).
<i>Tonicia fulva</i> <i>Wood.</i>	Portugal.
<i>Acanthochites discrepans</i> <i>Linn.</i> = <i>Chiton</i> <i>fascicularis</i> <i>Jeffr.</i>	Milford.
<i>Acanthochites fascicularis</i> <i>Linn.</i>	Dalmatia.

2d Sub-class — **OPHISTHOBRANCHIATA.**Order — **TECTIBRANCHIATA.**

<i>Tornatella fasciata</i> <i>Linn.</i>	British.
<i>Cylichna truncata</i> <i>Mont.</i>	British.
<i>Cylichna cylindracea</i> <i>Penn.</i>	British.
<i>Utriculus obtusus</i> <i>Mont.</i>	British.
<i>Haminea hydatis</i> <i>Linn.</i>	British.
<i>Scaphander lignarius</i> <i>Linn.</i>	British.
<i>Akera bullata</i> <i>Linn.</i>	British.
<i>Atys pyximediata</i> <i>A. Ad.</i>	Canaries (McAnd.).
<i>Philina aperta</i> <i>Linn.</i>	British.
<i>Philina scabra</i> <i>Müll.</i>	British.
<i>Aphysia hybrida</i> <i>Sby.</i>	British.

3d Sub-class — PULMONATA.

1st Order — INOPERCULATA.

1st Sub-order — Geophila.

<i>Cochlicopa acicula</i> Müll.....	British.
<i>Ferussacia Vescoi</i> Broign.= <i>folliculus</i> var.	Sicily.
<i>Zua lubrica</i> Müll.....	British.
<i>Azeca tridens</i> Pult.....	British.
<i>Rumina decollata</i> Linn.....	Canaries (Morch.).
<i>Conolus fuscus</i> Mont.....	Scarborough.
<i>Discus pygmæa</i> Drap.....	British.
<i>Discus umbilicata</i> Mont.....	British.
<i>Discus rotundata</i> Müll.....	British.
<i>Helicella nitidus</i>	British.
<i>Helicella nitidulus</i> Drap.....	British.
<i>Helicella aliaris</i> Müll.....	British.
<i>Helicella cellaria</i>	Sicily.
<i>Helicella radiatula</i> Aldu.....	British.
<i>Helicella crystallinus</i> Müll.....	British.
<i>Vitrina pellucida</i> Müll.....	British.
<i>Succinea putris</i> Linn.....	British.
<i>Succinea elegans</i> Risso.....	Nice.
<i>Bulimulus obscurus</i> Müll.....	British.
<i>Bulimulus detritus</i> Müll.....	Freiburg.
<i>Bulimulus Syriacus</i> Pfr.....	Lebanon (Trist.).
<i>Bulimulus vulgaris</i> Morelet, (jun.).....	St. Michaels (Ayers).
<i>Bulimulus pusio</i> Brod.....	Syra.
<i>Bulimulus larosus</i> Oliv.....	Carmel (Trist.).
<i>Brephalus Tournefortianus</i> Fer.....	Levant.
<i>Cochlicella ventricosa</i> Drap.....	Nizza.
<i>Cochlicella acuta</i> Müll.....	British.
<i>Cochlicella acuta</i> Müll.....	Nizza.
<i>Chondrus 7-dentatus</i> Roth.....	Carmel (Trist.).
<i>Chondrus spoliatus</i> Parr.....	Eleusis.
<i>Chondrus quadridens</i> Drap.....	Nizza.
<i>Pupa (Pupilla) dolium</i> Drap.....	Dauphine.
<i>Pupa umbilicata</i> Drap.....	British.
<i>Pupa pygmæa</i> Drap.....	British.
<i>Pupa (Torquilla) cinerea</i> Drap.....	Nizza.
<i>Pupa (Torquilla) avena</i> Drap.....	Switzerland.

Pupa Anglica <i>Fer.</i>	British.
Pupa muscorum <i>Linn.</i>	British.
Pupa secale <i>Drap.</i>	British.
Vertigo antivertigo <i>Drap.</i>	British.
Balea fragilis <i>Drap.</i> = <i>perversa Linn.</i> ...	British.
Clausilia nigricans <i>Maton.</i>	British.
Clausilia nigricans <i>var. dubia Drap.</i>	British.
Clausilia laminata <i>Mont.</i>	British.
Clausilia solidula <i>Drap.</i>	Nizza.
Clausilia latilabris <i>Wagner.</i>	Attica (Trist.).
Clausilia (Idyla) strangulata <i>Fer.</i>	Lebanon (Trist.).
Clausilia (Idyla) Medbycottii <i>Trist.</i>	Galilee (Trist.).
Clausilia (Idyla) Gennesarethana <i>Trist.</i> ..	Near Sea of Galilee (Trist.).
Clausilia (Elia) moesta	Central Palestine (Trist.).
Clausilia (Papillifera) bidens <i>Linn.</i>	Malta.
Clausilia (Herilla) conspurcata <i>Jans.</i>	Dalmatia.
Clausilia (Alinda) biplicata <i>Mont.</i>	Kent.
Clausilia (Medora) Boissieri <i>Charp.</i>	Lebanon (Trist.).
Clausilia (Medora) coerulea <i>Fer.</i>	Syra (Trist.).
Clausilia (Agathylla) deltostoma <i>Lowe.</i> ..	Dezertas (McAnd.).
Clausilia (Agathylla) Loweii <i>Albers.</i>	Porto Santo (McAnd.).
Clausilia (Agathylla) retusa <i>Oliv.</i>	Malta.
Helix Gussoniana <i>Shutt</i> = <i>figulina Parr.</i>	Jerusalem (Trist.).
Helix pomatia <i>Linn.</i>	British.
Helix cineta <i>Müll.</i> = <i>vineta McAnd.</i>	Smyrna (Trist.).
Acavus muralis <i>Müll.</i>	Italy.
Acavus vermiculatus <i>Müll.</i>	Dalmatia.
Acavus nemoralis <i>Linn. var. hybrida.</i> ...	British.
Acavus lacteus <i>Müll.</i> = <i>Canarensis Jan.</i> ..	Canaries (Morch.).
Acavus lacteus <i>Müll.</i>	Malaga.
Cochlea aperta <i>Born.</i>	Dalmatia.
Cochlea consobrina <i>Fer.</i>	Canaries (Morch.).
C. punctulata <i>S'y.</i> = <i>Bowditchiana Fer.</i>	Madeira (McAnd.).
Parthenia excavata <i>Phil.</i>	British.
Parthenia interstincta <i>Mont.</i>	British.
Dentellaria Boissieri.....	Wilderness of Judea.
Dent. Glasiana <i>Shutt.</i> = <i>pellis-lacerti Rve.</i>	Canaries (Morch.).
Macrocyclus Jebusitica <i>Rothe</i>	Gennesaret.
Vallonia pulchella <i>Müll.</i>	British.
Polygyra lenticulum <i>Fer.</i>	Ephesus.

<i>Polygyra barbula</i> <i>Charp.</i>	Vigo (McAnd.).
<i>Iberus cariosus</i> <i>Oliv.</i>	Judea (Trist.).
<i>Iberus nummus</i>	Lebanon (Trist.).
<i>Iberus elegans</i> <i>Gml.=terristris</i> <i>Chem.</i> ...	Spain.
<i>Iberus trochoides</i> <i>Poir.</i>	Dalmatia.
<i>Iberus</i> ——— sp. ind.....	Valencia.
<i>Iberus</i> ——— sp. ind.....	Gijon.
<i>Campylæa trizbona</i> <i>Liegl.</i>	Dalmatia.
<i>Arianta prophetarum</i> <i>Borey.</i>	Dead Sea (Trist.).
<i>Arianta candidissima</i> <i>Drap.</i>	Jericho (Trist.).
<i>Ochthephila abjecta</i> <i>Lowe.</i>	Porto Santo.
<i>Ochthephila armillata</i> <i>Lowe.</i>	Madeira.
<i>Ochthephila paupercula</i> <i>Lowe.</i>	Madeira.
<i>Ochthephila Madeirensis</i> <i>Wood.</i>	Madeira.
<i>Hygromia Syriaca</i> <i>Ehr.</i>	Palestine (Trist.).
<i>Hygromia hispida</i> <i>Linn.</i>	British.
<i>Hygromia sericea</i> <i>Drap.</i>	British.
<i>Hygromia Cantiana</i> <i>Mont.</i>	British.
<i>Theba pisana</i> <i>Müll.</i>	British.
<i>Theba pisana</i> <i>Müll.</i>	Canaries (Morch.).
<i>Theba caperata</i> <i>Mont.</i>	British.
<i>T. ? caperata</i> var. (passing into <i>virgata</i>)..	Is. Syra (Trist.).
<i>Theba virgata</i> <i>Da Costa</i>	British.
<i>Theba virgata</i> <i>Da Costa</i>	Dalmatia.
<i>Theba apicina</i> <i>Lam.</i>	Nizza.
<i>Theba alboranensis</i> <i>W. & R.</i>	Canaries (Morch.).
<i>Theba simulata</i> <i>Fer.</i>	Canaries (Morch.).
<i>Theba cespitum</i> <i>Fer.</i> var.....	Athens (P. P. C.).
<i>Theba subrostrata</i> <i>Fer.</i>	Athens.
<i>Theba fruticum</i> <i>Fer.</i>	Marbury.
<i>Theba nitidiuscula</i> <i>Sby.</i>	Dezertas.
<i>Theba conspurcata</i> <i>Drap.</i>	Nizza.
<i>Theba hierochundica</i> <i>Bourg.</i>	Jericho (Trist.).
<i>Theba melatina</i> <i>Ducl.</i>	Beersheba (Trist.).
<i>Theba Seelyenii</i> <i>Koch.</i>	Sinai.
<i>Theba protea</i> <i>Ziegl.</i>	Carmel (Trist.).

2d Sub-order—*Limnophila*.

<i>Carychinum minimum</i> <i>Müll.</i>	British.
<i>Conovulus denticulatus</i> <i>Mont.</i>	British.
<i>Leuconia bidentatus</i> <i>Mont.</i>	British.

<i>Leuconia</i> ? ——— sp. ind.	Local. ?
<i>Limneus truncatulus</i> Müll.	British.
<i>Limneus glaber</i> Müll.	British.
<i>Limneus stagnalis</i> Linn.	British.
<i>Limneus pereger</i> Müll.	British.
<i>Limneus palustris</i> Linn.	British.
<i>Limneus VahlII Beck. var. PingelII</i>	Greenland (Morch.).
<i>Amphipeplea glutinosa</i> Nilss.	Cambridge.
<i>Aplexus hypnorum</i> Linn.	British.
<i>Planorbis corneus</i> Linn.	France.
<i>Planorbis carinatus</i> Müll.	British.
<i>Planorbis marginatus</i> Dr. v. complanatus	British.
<i>Planorbis albus</i> Müll.	Hesse.
<i>Planorbis</i> ? <i>albus</i> Müll.	Smyrna (Trist.).
<i>Planorbis nitidus</i> Müll.	British.
<i>Planorbis vortex</i> Linn.	British.
<i>Planorbis spirorbis</i> Linn. = vortex var.	
<i>Jeffr.</i>	British.
<i>Planorbis contortus</i> Linn.	British.
<i>Planorbis glaber</i> Jeffr. (fossil)	Worcestershire.
<i>Planorbis nautilæus</i> Linn.	British.
<i>Spirorbis granulatus</i>	Scarborough.
<i>Spirorbis nautiloides</i>	Scarborough
<i>Segmentina lineata</i> Walk.	British.
<i>Ancylus fluviatilis</i> Müll.	British.
<i>Ancylus oblongus</i> Lightf.	British.

2d Order — OPERCULATA.

<i>Cyclostoma elegans</i> Müll.	British.
<i>Cyclostoma elegans</i> Müll.	Nice.
<i>Pomatias maculatus</i> Drap.	Mediterranean.
<i>Pomatias obscurus</i> Drap.	Mediterranean.
<i>Truncatella Montagni</i> Lowe.	British.
<i>Truncatella Montagni</i> Lowe, var.	Gibraltar.
<i>Assimineæ Grayana</i> Jeffr.	British.

LAMELLIBRANCHIATA.

1st Order — PHOLADACEA.

<i>Dactylina dactylus</i> Linn.	British.
<i>Barnea candida</i> Linn.	British.

<i>Xylophaga dorsalis</i> <i>Turt.</i>	(W. Bean).
<i>Zirphæa crispata</i> <i>Linn.</i>	British.
<i>Xylotrya Stutchburyi</i> <i>Leach.</i>	(W. Bean).
<i>Teredo megotara</i> <i>Hanl.</i>	(W. Bean).
<i>Gastrochæna modiolina</i> <i>Lam.</i>	(W. Bean).
<i>Ensatella siliqua</i> <i>Linn.</i>	British.
<i>Ensatella ensis</i> <i>Linn.</i>	British.
<i>Ceratisolen legumen</i> <i>Linn.</i>	British.
<i>Solecurtus coarctatus</i> <i>Gmel.</i>	Palermo.
<i>Saxicava artica</i> <i>Linn.</i>	British.
<i>Saxicava arctica</i> <i>var. pholadis.</i>	Dalmatia.
<i>Saxicava rugosa</i> <i>Linn.</i>	British.
<i>Saxicava rugosa</i> <i>Linn.</i> (fossil).	Uddevalla.
<i>Mya truncata</i> <i>Linn.</i>	British.
<i>Corbula nucleus</i> <i>Lam.</i>	British.
<i>Corbula nucleus</i> <i>Lam.</i>	Mediterranean.
<i>Sphænia Binghami</i> <i>Turt.</i>	British.
<i>Periploma prætenu</i> <i>Pult.</i>	British.
<i>Lyonsia Norwegica</i> <i>Chemn.</i>	(W. Bean).
<i>Thracia phaseolina</i> <i>Lam.</i>	British.
<i>Thracia villosiuscula</i> <i>Macgil.</i>	British.
<i>Thracia distorta</i> <i>Mont.</i>	(W. Bean).
<i>Pandora rostrata</i> <i>Lam.</i>	(W. Bean).
<i>Pandora obtusa</i> <i>Leach.</i>	(W. Bean).

2d Order—VENERACEA.

<i>Mactra stultorum</i> <i>Linn.</i>	British.
<i>Spisula elliptica</i> <i>Brown.</i>	(W. Bean).
<i>Spisula truncata</i> <i>Mont.</i>	British.
<i>Spisula subtruncata</i> <i>Mont.</i>	(W. Bean).
<i>Spisula solida</i> <i>Linn.</i>	British.
<i>Lutraria elliptica</i> <i>Lam.</i>	British.
<i>Psammobia tellinella</i> <i>Lam.</i>	British.
<i>Psammobia Ferroensis</i> <i>Chemn.</i>	British.
<i>Psammobia vespertina</i> <i>Chemn.</i>	British.
<i>Arcopagia crassa</i> <i>Penn.</i>	(W. Bean).
<i>Angulus incarnata</i> <i>Linn.</i>	British.
<i>Angulus fabula</i> <i>Gronov.</i>	British.
<i>Tellina</i> (<i>Tellinella</i>) <i>pulchella</i> <i>Lam.</i>	Spain.
<i>Tellina</i> (<i>Tellinella</i>) <i>serrata</i> <i>Broc.</i>	Mediterranean.

Tellina (Mœra) distorta <i>Poli</i>	Smyrna.
Tellina (Mœra) donacina <i>Linn</i>	(W. Bean).
Tellina (Peronæa) nitida <i>Poli</i>	Mediterranean.
Tellina (Donacilla) cornea <i>Poli</i>	Dalmatia.
Macoma tenuis <i>Da Costa</i>	Corunna.
Macoma solidula <i>Pult</i>	British.
Macoma subulosa <i>Spenge</i>	Greenland.
Gastrana fragilis <i>Linn</i>	(W. Bean).
Gastrana fragilis <i>Linn</i>	Palermo.
Donax trunculus <i>Linn</i>	Naples.
Donax anatinus <i>Lam</i>	British.
Donax politas <i>Poli</i>	Naples.
Lucinopsis undata <i>Perm</i>	British.
Dosinia exoleta <i>Linn</i>	Vigo, Spain.
Scrobicularia piperata <i>Gmel</i>	British.
Syndosmya alba <i>Wood</i>	British.
Syndosmya prismatica <i>Mont</i>	British.
Ervilia castanea <i>Mont</i>	Faro (McAnd.).
Venus verrucosa <i>Linn</i>	British.
Venus casina.....	British.
Chione fasciata.....	British and Vigo.
Chione striatula <i>Donov</i>	British.
Chione gallina <i>Linn</i>	Mediterranean.
Chione ovata <i>Penn</i>	British.
Circe minima <i>Mont</i>	British.
Callista chione <i>Linn</i>	British.
Callista venetiana <i>Lam</i>	Mediterranean.
Dosinia lineta <i>Pult</i>	British.
Tapes aurea <i>Gmel</i>	British.
Tapes virginea <i>Linn</i>	British.
Tapes decussata <i>Linn</i>	British.
Tapes pullastra <i>Wood</i>	British.
Venerupis irus <i>Linn</i>	(W. Bean).
Cyprina Islandica <i>Linn</i>	British.
Cyclas pisidioides <i>Gray</i>	Bristol.
Cyclas caliculata <i>Drap</i>	British.
Cyclas cornea <i>Drap</i>	British.
Cyclas ovalis <i>Fer.=pallida</i> Gray.....	British.
Cyclas revicola <i>Leach</i>	British.
Pisidium amnicum <i>Müll</i>	British.

<i>Pisidium Henolowianum</i> (fossil).....	Worcestershire.
<i>Pisidium pusillum</i> <i>Jen</i>	British.
<i>Pisidium cinereum</i> <i>Ald</i>	British.
<i>Pisidium nitidum</i> <i>Jen</i>	British.
<i>Cardium Norvegicum</i> <i>Spengl</i>	British.
<i>Cardium echinatum</i>	British.
<i>Cardium edule</i> <i>Linn</i>	British.
<i>Cardium paucicostatum</i> <i>Sby</i>	Mediterranean.
<i>Cardium Suecicum</i> <i>Lov</i>	British.
<i>Cardium Suecicum</i> <i>Lov</i>	Norway.
<i>Cardium ciliatum</i> <i>Fabr</i>	Greenland.
<i>Cardium pygmæum</i> <i>Don</i>	British.
<i>Cardium nodosum</i> <i>Turt</i>	Scarborough.
<i>Cardium rusticum</i> <i>Linn</i>	British.
<i>Cardium fasciatum</i> <i>Mont</i>	British.
<i>Cardium papillosum</i> <i>Poli</i>	Mediterranean:
<i>Venericardia aculeata</i> <i>Phil</i>	Gibraltar (McAndrew).
<i>Venericardia trapezia</i> <i>Brug</i>	Malta.
<i>Venericardia sulcata</i> <i>Lam</i>	Gibraltar (McAnd.).

3d Order—LUCINACEA.

<i>Lucina</i> (<i>Cyclas</i>) <i>divaricata</i> <i>Linn</i>	Athens (McAnd.).
<i>Lucina</i> (<i>Cyclas</i>) <i>digitalis</i> <i>Linn</i>	Gibraltar (McAnd.).
<i>Lucina borealis</i> <i>Linn</i>	British.
<i>Lucina rugifera</i> <i>Haml</i>	Loc. ?
<i>Myrtæa spinifera</i> <i>Mont</i>	(W. Bean).
<i>Cryptodon flexuosus</i> <i>Mont</i>	(W. Bean).
<i>Cryptodon ferruginosus</i>	(W. Bean).
<i>Diplodonta rotundata</i> <i>Mont</i>	(W. Bean).
<i>Kellia suborbicularis</i> <i>Mont</i>	British.
<i>Pythina corbuloides</i> <i>Phil</i>	Gibraltar (McAnd.).
<i>Cyamium antarcticum</i> <i>Phil</i>	Magellan Straits.
<i>Cyamium minutum</i> <i>O. Fabr</i>	British.
<i>Turtonia purpurea</i> <i>Mont</i>	British.
<i>Lepton squamosum</i> <i>Mont</i>	(W. Bean).
<i>Lepton nitidum</i> <i>Turt</i>	Lambash.
<i>Tellimya bidentata</i> <i>Mont</i>	British.
<i>Tellimya ferruginosa</i> <i>Mont</i>	(W. Bean).
<i>Astarte crebristriata</i> <i>Forbs</i>	Finmark (McAnd.).
<i>Astarte sulcata</i> <i>Da Cost</i>	British.

<i>Astarte semisulcata</i> ? = <i>arctica</i> var. <i>Leach</i> .	Iceland.
<i>Astarte triangularis</i> <i>Mont</i> .	Gibraltar (McAnd.).
<i>Astarte triangularis</i> var. <i>minutissima</i> ...	British.
<i>Astarte elliptica</i>	Greenland.
<i>Astarte compressa</i> <i>Mont</i>	Norway (McAnd.).
<i>Astarte striata</i> <i>Leach</i>	Greenland.
<i>Gouldia minima</i> <i>Mont</i>	Villafranca.
<i>Cardita calyculata</i> <i>Poli</i>	Sicily.
<i>Unio litoralis</i> <i>Lam</i>	Cordova.
<i>Unio tumidus</i> <i>Rets</i>	British.
<i>Unio pictorum</i> <i>Linn</i>	British.
<i>Mytilus edulis</i> <i>Linn</i>	British.
<i>Mytilus minimus</i> <i>Poli</i>	Mediterranean.
<i>Mytilus</i> ——— sp. ind.	Mediterranean.
<i>Crenella decussata</i> <i>Mont</i>	British.
<i>Crenella decussata</i> <i>Mont</i>	Greenland.
<i>Crenella faba</i> <i>Fabr</i>	Greenland.
<i>Crenella marmorata</i> <i>Forbes</i>	British.
<i>Crenella</i> (<i>Modiolaria</i>) <i>discors</i> <i>Linn</i>	British.
<i>Crenella</i> (<i>Modiolaria</i>) <i>discors</i> <i>Linn</i>	Finmark (McAnd.).
<i>Modiola barbata</i> <i>Linn</i>	British.
<i>Modiola phaseolina</i> <i>Phil</i>	Norway (McAnd.).
<i>Modiola tulipa</i> <i>Lam</i>	British.
<i>Modiola modiolus</i> <i>Linn</i>	British.
<i>Modiola costulata</i> <i>D'Orb. non Risso</i>	Canaries (McAnd.).
<i>Dreissena polymorpha</i> <i>Pallas</i>	British.

4th Order — PECTINACEA.

<i>Byssarca Noë</i> <i>Linn</i>	Mediterranean.
<i>Byssarca tetragona</i> <i>Pol</i>	British.
<i>Barbatia lactea</i> <i>Linn</i>	British.
<i>Barbatia lactea</i> <i>Linn</i>	Dalmatia.
<i>Barbatia barbata</i> <i>Linn</i>	Cadiz (McAnd.).
<i>Pectunculus glycymeris</i> <i>Linn</i>	British.
<i>Pectunculus violascens</i> <i>Linn</i>	Mediterranean.
<i>Nucula tenuis</i> <i>Mont</i>	Scotland (McAnd.).
<i>Nucula nucleus</i> <i>Linn</i>	British.
<i>Nucula nitida</i> <i>Mont</i>	Mediterranean.
<i>Nucula radiata</i> <i>Hane</i>	British.
<i>Leda minuta</i> <i>Möll</i>	Greenland.

<i>Leda pella</i> Linn.= <i>emarginata</i> Lam....	Smyrna.
<i>Yoldia pygmæa</i> Mont.....	Hebrides (McAnd.).
<i>Yoldia lucida</i> Bland.	Norway (McAnd.).
<i>Pecten opercularis</i> Linn.....	British.
<i>Pecten tigrinus</i> Müll.....	British.
<i>Pecten varius</i> Linn.....	British.
<i>Janira maximus</i> Linn. (jun.).....	British.
<i>Hinnites pusio</i> Penn.....	British.
<i>Lima Loscombii</i> Sby.....	British.
<i>Lima hians</i> Gmel.....	British.
<i>Limatula subauriculata</i> Mont.....	British.
<i>Anomia ephippium</i> Linn.	British.
<i>Placunanomia patelliformis</i> Linn.....	(W. Bean).

BRACHIOPODA.

<i>Terebratulina caput-serpentis</i> Linn.	British.
<i>Waldheimia cranium</i> Gmel.....	Loc. ?
<i>Crania anomala</i> Müll.....	British.

ECHINODERMATA.

<i>Echinus miliaris</i>	Scarborough.
<i>Amphidotus roseus</i>	Scarborough.
<i>Echinocyanus pusillus</i>	British.

REPORT OF THE BOTANIST.

S. B. WOOLWORTH, LL. D.,

Secretary of the Regents :

SIR.—Since the date of my last report, specimens of three hundred and twenty-four species of plants have been poisoned and mounted, three hundred and sixteen of which were not before represented in the Herbarium. For want of room in the Herbarium case, only a part of these have been placed therein. A list of the specimens mounted is marked (1).

Specimens have been collected in the counties of Albany, Alleghany, Cattaraugus, Essex, Orange, Putnam, Rensselaer, Schuyler, Seneca and Wayne, representing two hundred and twenty-two species new to the State. Of these, one hundred are regarded as new or undescribed species. A list of specimens collected is marked (2). This does not include new varieties and duplicate specimens of species before reported. Of these, a considerable number of specimens have been collected.

Specimens representing thirty-one species new to the State, and not among my collections of the past season, have been received from correspondents. They were collected in the counties of Dutchess, Erie, Greene, Kings, Suffolk, Rockland and Ulster. If these be added to those of my own collecting, the total number of additions to the flora of the State, the past season, becomes two hundred and fifty-three species. This number is smaller than those of previous years, and having been attained without any diminution of diligence or relaxation of effort, it indicates considerable progress toward the full representation of our flora by specimens in the State Herbarium.

A classified statement of the number of added species is given below:

		New to the State.	New to Science.
Collected	Flowering plants....	2	1
	Mosses.....	4	3
	Lichens	5	.....
	Fungi.....	211	96
Total .....	.....	222	100
Contributed	Flowering plants....	6	.....
	Hepaticæ.....	1	.....
	Lichens	4	.....
	Fungi.....	20	2
Total .....	.....	31	2
Collected and distributed,	.....	253	102

Specimens have been received of a considerable number of extralimital species. A list of these, together with the other contributions and of the contributors, is marked (3).

New species and descriptions thereof, previously unreported species, remarkable varieties and observations, are given in a section marked (4).

The large and interesting genus *Puccinia* is represented in our State by forty species. Of these, several are new and of others only brief and unsatisfactory descriptions have been published, and none of the descriptions that I have seen give the dimensions of the spores. It has been thought desirable, therefore, to give a full synopsis of our species. This is marked (5). It is illustrated by drawings of the magnified spores of all the species.

The work of making colored sketches of the fleshy fungi as fast as collected has been continued and in some cases extended to the microscopic species and the details of their fructification. The number of species figured is sixty-three.

A marked deficiency in the production of *Agarics* and other fleshy fungi the past season has been reported to me by several correspondents. The season has not been excessively dry except in the western part of the State, and I am at a loss to know to what cause to attribute this result. The prevailing low temperature doubtless had some influence in producing the scarcity, but this alone is scarcely a sufficient cause.

(1)

SPECIES OF WHICH SPECIMENS HAVE BEEN MOUNTED.

NOT NEW TO THE HERBARIUM.

Lechea Novæ-Cæsareæ Aust.
Rubus strigosus Mx.
Aristolochia Serpentina L.
Pinus resinosa Ait.
Juncus alp. v. insignis Fr.
Bromus ciliatus L.
Cystopteris fragilis Bernh.
Botrychium lanceolatum Angst.

NEW TO THE HERBARIUM.

Corydalis flavula Raf.
Nasturtium sylvestre R. Br.
Barbarea præcox R. Br.
Viola primulæfolia L.
Silene inflata Smith.
Linum striatum Walt.
Galactia mollis Mx.
Coronilla varia DC.
Cratægus parvifolia Ait.
Oxalis corniculata L.
Lythrum Hyssopifolia L.
Frangula Caroliniana Gr.
Fedia radiata Mx.
F. umbilicata Sulliv.
Crepis virens L.
Eupatorium pubescens Muhl.
Mentha aquatica L.
Carex capillaris L.
Aspidium aculeatum Sz.
A. Thelypteris Sz.
Sticta crocata L.
Cetraria Pinastri Ach.
Biatora exigua Chaub.
B. lucida Ach.
Coniocybe furfuracea L.
Umbilicaria Pennsylvanica Hoffm.
Pyrenula leucoplaca Tuck.
Leptogium pulchellum Nyl.
Collema pulposum Bernh.
Ephebe pubescens Fr.
Agaricus volvatus Pk.
A. rubescens Pers.
A. chrysenteroides Pk.
A. equestris L.

Agaricus Schumacheri Fr.
A. fragrans Sow.
A. Calathus Buxb.
A. Hoffmani Pk.
A. marmoreus Pk.
A. spinulifer Pk.
A. similis Pk.
A. clusilis Fr.
A. pyxidatus Bull.
A. Leaianus Berk.
A. Tintinnabulum Fr.
A. hæmatopus Pers.
A. leptophyllus Pk.
A. fibuloides Pk.
A. ulmarius Sow.
A. Ascophorus Pk.
A. excedens Pk.
A. variabilis Pers.
A. haustellaris Fr.
A. Greigensis Pk.
A. zonatus Pk.
A. Sienna Pk.
A. lilacinus Pk.
A. ectypoides Pk.
A. Trentonensis Pk.
A. porrigens Pers.
A. admirabilis Pk.
A. delicatulus Pk.
A. Clintonianus Pk.
A. asprellus Fr.
A. conicus Pk.
A. Seymouranus Pk.
A. sericellus Fr.
A. Woodianus Pk.
A. scabrosus Fr.
A. Grayanus Pk.
A. Noveboracensis Pk.
A. abortivus B. & C.
A. bombycinus Schæff.
A. Highlandensis Pk.
A. mollis Schæff.
A. dorsalis Pk.
A. mutatus Pk.
A. illicitus Pk.
A. heteroclitus Fr.
A. Aggericola Pk.

- Agaricus flammans *Fr.*
 A. squarrosus *Müll.*
 A. salmoneus *Pk.*
 A. cuspidatus *Pk.*
 A. Limicola *Pk.*
 A. eximius *Pk.*
 A. odoratus *Pk.*
 Bolbitius nobilis *Pk.*
 Coprinus semilanus *Pk.*
 C. atramentarius *Bull.*
 C. radiatus *Bolt.*
 C. silvaticus *Pk.*
 Cortinarius evernius *Fr.*
 C. corrugatus *Pk.*
 C. bolaris *Pers.*
 C. asper *Pk.*
 C. olivarius *Pk.*
 Cantharellus cinereus *Fr.*
 Plicatura Alni *Pk.*
 Hygrophorus lætus *Fr.*
 H. puniceus *Fr.*
 H. psittacinus *Fr.*
 H. miniatus *Fr.*
 Gomphidius viscidus *Fr.*
 Lactarius cinereus *Pk.*
 L. angustissimus *Lasch.*
 L. serifluus *Fr.*
 L. Chelidonium *Pk.*
 L. fumosus *Pk.*
 L. insulsus *Fr.*
 L. trivialis *Fr.*
 Russula rubra *Fr.*
 R. Mariæ *Pk.*
 R. virescens *Fr.*
 R. simillima *Pk.*
 Paxillus involutus *Fr.*
 P. atrotomentosus *Fr.*
 Marasmius filipes *Pk.*
 M. pulcherripes *Pk.*
 M. papillatus *Pk.*
 M. candidus *Fr.*
 M. decurrens *Pk.*
 M. perforans *Fr.*
 M. striatipes *Pk.*
 Panus salicinus *Pk.*
 Craterellus lutescens *Fr.*
 Boletus gracilis *Pk.*
 B. bicolor *Pk.*
 Polyporus poripes *Fr.*
 P. glomeratus *Pk.*
 Polyporus velutinus *Fr.*
 P. elongatus *Berk.*
 P. Vaillantii *Fr.*
 P. Corticola *Fr.*
 P. Viticola *Fr.*
 P. fumosus *Fr.*
 P. cæsius *Fr.*
 P. zonatus *Fr.*
 P. vesiculosus *B. & C.*
 Trametes sepium *Berk.*
 Hydnum zonatum *Fr.*
 H. ferrugineum *Fr.*
 H. pithyophilum *B. & C.*
 Odontia fimbriata *Fr.*
 Kneiffia setigera *Fr.*
 K. candidissima *B. & C.*
 Phlebia radiata *Fr.*
 P. zonata *B. & C.*
 Guepinia Spathularia *Fr.*
 Corticium salicinum *Fr.*
 C. Liquidambaris *B. & C.*
 C. incarnatum *Fr.*
 C. Auferianum *Mont.*
 C. Rubicola *B. & C.*
 Stereum rugosum *Fr.*
 S. albobadium *Schw.*
 S. Curtisii *Berk.*
 Thelephora sebacea *Fr.*
 T. caryophyllæa *Fr.*
 T. coralloides *Fr.*
 T. palmata *Fr.*
 T. tuberosa *Fr.*
 Clavaria flava *Fr.*
 C. fragilis *Holmsk.*
 C. argillacea *Fr.*
 C. trichopus *Pers.*
 C. cinerea *Bull.*
 C. mucida *Pers.*
 C. Kunzei *Fr.*
 C. spinulosa *Pers.*
 C. crispula *Fr.*
 C. apiculata *Fr.*
 C. tetragona *Schw.*
 C. pistillaris *Fr.*
 Calocera cornea *Fr.*
 C. palmata *Fr.*
 C. viscosa *Fr.*
 Tremella foliacea *Pers.*
 Næmatelia atrata *Pk.*
 N. nucleata *Fr.*

- Phallus impudicus *Fr.*
 Cyathus striatus *Hoffm.*
 Geaster minimus *Schw.*
 Lycoperdon molle *Pers.*
 L. atropurpureum *Vitt.*
 L. subincarnatum *Pk.*
 Dictydium magnum *Pk.*
 Didymium squamulosum *A. & S.*
 Arcyria punicea *Pers.*
 Stemonitis fusca *Roth.*
 Trichia pyriformis *Hoffm.*
 T. chrysosperma *DC.*
 T. varia *Pers.*
 T. Serpula *Pers.*
 Phoma Menispermii *Pk.*
 P. longissimum *Berk.*
 P. ampelinum *B. & C.*
 Leptostroma vulgare *Fr.*
 Sphæronema Coryli *Pk.*
 S. pruinosa *Pk.*
 S. acerinum *Pk.*
 S. subulatum *Fr.*
 Sphæropsis pulchella *B. & C.*
 S. Menispermii *Pk.*
 S. anomala *Pk.*
 Melanconium bicolor *Nees.*
 Septoria Lobeliæ *Pk.*
 S. phlyctænoides *B. & C.*
 S. Hippocastani *B. & Br.*
 Septoria Nabali *B. & C.*
 S. Erigeronis *Pk.*
 Discosia alnea *Lib.*
 Discella obscura *B. & C.*
 Nemaspora Russellii *B. & C.*
 Cytispora parva *B. & C.*
 C. coryneoides *B. & C.*
 C. hyalosperma *Fr.*
 C. melasperma *Fr.*
 Coryneum clavæsporum *Pk.*
 Vermicularia Dematium *Fr.*
 Phragmidium obtusum *Lk.*
 Puccinia Convolvuli *B. & C.*
 P. striola *Lk.*
 P. Gardii *Pk.*
 P. minutula *Pk.*
 P. Pyrolæ *Cooke.*
 P. tripustulata *Pk.*
 P. Galiorum *Lk.*
 P. Nolitangeris *Cd.*
 Pileolaria brevipes *B. & C.*
 Uromyces Polygoni *Fuckel.*
 U. Caricis *Pk.*
 U. solida *B. & C.*
 U. appendiculata *Lev.*
 Ustilago Montagnei *Tul.*
 U. longissima *Tul.*
 Ræstelia cornuta *Tul.*
 Æcidium tenue *Schw.*
 Æ. Osmorrhizæ *Pk.*
 Æ. Erigeronatum *Schw.*
 Æ. Thalictri *Grev.*
 Æ. Allenii *Clinton.*
 Æ. Euph.-hypericifoliæ *Schw.*
 Æ. Menthæ *DC.*
 Æ. Iridis *Gerard.*
 Æ. Penstemonis *Schw.*
 Æ. Berberidis *Pers.*
 Æ. Mariæ-Wilsoni *Pk.*
 Æ. Urticæ *DC.*
 Lecythea Rosæ *Lev.*
 Trichobasis Labiatarum *Lev.*
 T. Galii *Lev.*
 T. Iridicola *Pk.*
 Uredo æcidioides *Pk.*
 U. Aspidiotus *Pk.*
 Stilbum Rhois *B. & C.*
 S. pellucidum *Schrad.*
 S. giganteum *Pk.*
 Fusarium erubescens *B. & C.*
 Tubercularia nigricans *DC.*
 Oidium fructigenum *Kze.*
 Sepedonium chrysospermum *Lk.*
 Geoglossum luteum *Pk.*
 G. microsporum *C. & P.*
 Helvella crispa *Fr.*
 H. sulcata *Afz.*
 H. elastica *Bull.*
 H. gracilis *Pk.*
 Nodularia Balsamicola *Pk.*
 Peziza aurantia *Fr.*
 P. Erineum *Schw.*
 P. hemisphærica *Wigg.*
 P. fusca *Pers.*
 P. mollisioides *Schw.*
 P. æruginosa *Fr.*
 P. vinosa *A. & S.*
 P. echinospora *Pk.*
 P. rubricosa *Fr.*
 P. rubra *Pk.*
 P. cariosa *Pk.*

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|----------------------------------------|-----------------------------------|
| Peziza Tiliæ <i>Pk.</i> | Hypoxylon concentricum <i>Fr.</i> |
| P. comata <i>Schw.</i> | H. anthracodes <i>Fr.</i> |
| P. Persoonii <i>Mong.</i> | H. argillaceum <i>Fr.</i> |
| P. furfuracea <i>Fr.</i> | Xylaria corniformis <i>Fr.</i> |
| Nectria Peziza <i>Fr.</i> | Valsa Pini <i>Fr.</i> |
| Hypocrea floccosa <i>Fr.</i> | V. pulchella <i>Fr.</i> |
| Rhizomorpha subcorticalis <i>Pers.</i> | V. salicina <i>Fr.</i> |
| Hysterium Smilacis <i>Schw.</i> | V. aculeans <i>Schw.</i> |
| H. virgultorum <i>Desm.</i> | Sphæria Coptis <i>Schw.</i> |
| H. pulicare <i>Pers.</i> | S. Tiliæ <i>Pers.</i> |
| H. Azaleæ <i>Schw.</i> | S. Sarraceniae <i>Schw.</i> |
| Tympanis alnea <i>Pers.</i> | Dothidea Anemones <i>Fr.</i> |
| Cenangium Cerasi <i>Fr.</i> | D. flabella <i>B. & C.</i> |
| C. Prunastri <i>Fr.</i> | D. Pteridis <i>Fr.</i> |
| C. triangulare <i>Schw.</i> | D. Sambuci <i>Fr.</i> |
| Sphinctrina Cerasi <i>B. & C.</i> | D. Ribesia <i>Fr.</i> |
| Hypoxylon Morseii <i>B. & C.</i> | Erineum quercinum <i>Kze.</i> |
| H. Howeanum <i>Pk.</i> | E. roseum <i>Schultz.</i> |

(2)

PLANTS COLLECTED.

FLOWERING PLANTS.

Lythrum alatum Pursh.
Arcanthobium pusillum Pk.

MOSSES.

Orthotrichum Peckii S. & L.
O. sordidum S. & L.
Polytrichum strictum Menz.
Hypnum Peckii Aust.

LICHENS.

Placodium elegans Lk.
Biatora decolorans Hoffm.
Pannaria nigra Huds.
P. crassophylla Tuck.
Arthonia spectabilis Flot.

FUNGI.

Agaricus russuloides Pk.
A. illinitus Fr.
A. hordus Fr.
A. virescens Pk.
A. decoloratus Pk.
A. multipunctus Pk.
A. sinopicus Fr.
A. fallax Pk.
A. succosus Pk.
A. myriadophyllus Pk.
A. pelianthinus Fr.
A. minutulus Pk.
A. subcæruleus Pk.
A. roseocandidus Pk.
A. debilis Bull.
A. roridus Fr.
A. pterigenus Fr.
A. olivarius Pk.
A. gracillimus Weinm.
A. sterilomarginatus Pk.
A. putrigena B. & C.
A. albocrenulatus Pk.
A. Acericola Pk.
A. discolor Pk.
A. pallidomarginatus Pk.
A. squamosus Fr.
A. saccharinophilus Pk.
A. hirtosquamulosus Pk.

Agaricus hiascens Fr.
Coprinus variegatus Pk.
Hygrophorus chlorophanus Fr.
Marasmius semihirtipes Pk.
M. umbonatus Pk.
M. languidus Fr.
Lentinus tigrinus Bull.
L. vulpinus Fr.
L. hæmatopus Berk.
Hydnum strigosum Swartz.
Boletus separans Pk.
B. affinis Pk.
B. modestus Pk.
B. castaneus Bull.
Polyporus resinosus Fr.
P. picipes Fr.
Merulius lacrymans Fr.
Craterellus cæspitosus Pk.
Thelephora anthocephala Fr.
T. pedicellata Schw.
Clavaria rufescens Schæff.
C. pusilla Pk.
C. clavata Pk.
Tremella albida Huds.
T. colorata Pk.
Solenia ochracea Hoffm.
Stemonitis typhoides DC.
Arcyria incarnata Pers.
A. globosa Schw.
Phoma nebulosum Berk.
Cryptosporium Scirpi Pk.
Sphæronema truncatum Fr.
S. cæspitosum Pk.
S. minutissimum Pk.
S. pallidum Pk.
Gelatinosporium abietinum Pk.
G. betulinum Pk.
Acrosporum compressum Tode.
Sphæropsis Malorum Berk.
S. Platani Pk.
S. Pericarpium Pk.
S. quercina Pk.
S. linearis Pk.
Diplodia valsoides Pk.
D. petiolaris Pk.
D. Lignicola Pk.

Hendersonia Platani Pk.
H. Sambuci Pk.
Darluka filum Cast.
Septoria mirabilis Pk.
S. acerina Pk.
S. salicina Pk.
S. ochroleuca B. & C.
Dinemasporium graminum Lev.
D. herbarum Cooke.
Micropera Drupacearum Lev.
Discella carbonacea B. & Br.
Stilbospora Staphyleæ Schw.
Cheirospora botryospora Fr.
Torula alnea Pk.
Sporendonema Muscæ Fr.
Sporidesmium moriforme Pk.
Podisoma fuscum Duby.
Gymnosporangium clavipes
C. & P.
Cytispora chrysosperma Pers.
Puccinia pulchella Pk.
P. arundinacea Hedw.
P. linearis Pk.
P. oblecta Pk.
P. angustata Pk.
P. Caricis DC.
P. Menthæ Pers.
P. Myrrhis Schw.
P. Mariæ-Wilsoni Clinton.
Urocystis pusilla C. & P.
Uromyces triquetra Cooke.
U. Euphorbiæ C. & P.
Gymnosporium Arundinis Cd.
Protomyces Erythronii Pk.
Uredo Ledicola Pk.
Peridermium Cerebrum Pk.
Roestelia aurantiaca Pk.
Æcidium crassum Pers.
Æ. Calthæ Grev.
Æ. Gerardiæ Pk.
Æ. Hypericatum Schw.
Æ. Asteratum Schw.
Stilbum tomentosum Schrad.
Atractium flammeum B. & R.
Fusarium lateritium Nees.
F. roseum Lk.
Illosporium roseum Fr.
Periconia Azaleæ Pk.
Sporocybe byssoides Fr.

Clasterisporium pedunculatum *Pk.*
 Macrosporium Chartarum *Pk.*
 M. Brassicæ *Berk.*
 Streptothrix abietina *Pk.*
 Cladosporium epiphyllum *Nees.*
 Oidium monilioides *Lk.*
 Zygodemus fuscus *Cd.*
 Z. olivaceus *B. & C.*
 Ascophora Mucedo *Tode.*
 Sphærotheca Castagnei *Lev.*
 S. pruinosa *C. & P.*
 Podosphæra biuncinata *C. & P.*
 Microsphæra pulchra *C. & P.*
 M. diffusa *C. & P.*
 M. extensa *C. & P.*
 M. Hedwigii *Lev.*
 Erysiphe Martii *Lk.*
 Uncinula macrospora *Pk.*
 U. circinata *C. & P.*
 U. Ampelopsidis *Pk.*
 Vibrissea lutea *Pk.*
 V. Truncorum *Fr.*
 Geoglossum glutinosum *Pers.*
 G. simile *Pk.*
 G. microsporum *C. & P.*
 Nodularia Acericola *Pk.*
 Patellaria indigotica *C. & P.*
 Helotium epiphyllum *Fr.*
 Peziza pellita *C. & P.*
 P. badia *Pers.*
 P. vesiculosa *Bull.*
 P. stercorea *Pers.*
 P. Resinæ *Fr.*
 P. Kalmiæ *Pk.*
 P. leucoloma *Reb.*
 P. nivea *Fr.*
 P. coronata *Bull.*
 P. Solenia *Pk.*
 Stictis radiata *Fr.*
 Cenangium Cephalanthi *Schw.*
 Tympanis conspersa *Fr.*
 Rhytisma lineare *Pk.*
 R. Andromedæ *Fr.*
 Hysterium ilicinum *De Not.*
 H. commune *Fr.*
 H. scirpinum *Fr.*
 H. insidens *Schw.*
 Hypocrea gelatinosa *Fr.*
 Xylaria acuta *Pk.*

Xylaria filiformis A. & S.	Sphæria bombarda Batsch.
Hypoxyton vernicosum Schw.	S. moriformis Tode.
Diatrype atropunctata Schw.	S. pulveracea Ehrh.
D. discreta Schw.	S. salicella Fr.
D. betulina Pk.	S. Ramulicola Pk.
Dothidea Kalmiæ Pk.	S. Vaccinicola Schw.
Eutypa lata Tul.	S. Pezizula B. & C.
Melanconis elliptica Pk.	S. lilacina Schw.
Valsa ambiens Fr.	S. rubella Pers.
V. thelebola Fr.	S. eccentrica C. & P.
V. Platani Schw.	S. Petiolorum Schw.
V. Vitis Schw.	S. Kalmiarum Schw.
V. Colliculus Wormsk.	S. melanostyla Fr.
V. Alni Pk.	S. Fraxicola Schw.
V. truncata C. & P.	S. leucoplaca B. & R.
V. quaternata Fr.	Sphærella spleniata C. & P.
V. hapalocystis B. & Br.	Venturia pulchella C. & P.
V. profusa Fr.	V. orbicula C. & P.
Massaria Argus Tul.	V. compacta Pk.
Sphæria hirsuta Fr.	

(3)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Miss S. P. MONKS, Cold Spring, N. Y.

Asplenium Rutamurarie L.

Miss E. BAILEY, Albany, N. Y.

Utricularia vulgaris L.

Miss M. L. WILSON, Buffalo, N. Y.

Pyrenula leucoplaca *Kærb.**Pannaria nigra* *Nyl.**P. triptophylla* *Ach.**Gyalecta cupularis* *Schær.**Arthonia spectabilis* *Flot.**Verrucaria papillosa* *Ach.**Rinodina ascociscana* *Tuck.**Collema pulposum* *Ach.*

E. L. HANKENSON, Newark, N. Y.

Chærophylllum procumbens *Lam.* | *Carex Careyana* *Dew.*

S. N. COWLES, Otisco, N. Y.

Carex capillaris v. *elongata* *Olney.* | *Botrychium simplex* *Hitch.*

R. P. WHITFIELD, Albany, N. Y.

Lactarius Indigo *Schw.*

J. A. LINTNER, Albany, N. Y.

Peridermium Cerebrum *Pk.*

MUNSON PECK, Sandlake, N. Y.

Clavaria rufescens *Schæff.*

E. S. MILLER, Wading River, N. Y.

Utricularia striata *Lec.**U. purpurea* *Walt.**Sagittaria graminea* *Mx.**Rhynchospora macrostachya**Torr.**Eleocharis Robbinsii* *Oakes.*

Rev. J. L. ZABRISKIE, New Baltimore, N. Y.

Urocystis occulta *Preuss.**Puccinia variabilis* *Grev.**Ræstelia aurantiaca* *Pk.**Dinemasporium graminum* *Lev.**Erysiphe Martii* *Lk.*

VERPLANCK COLVIN, Albany, N. Y.

Cornus Canadensis <i>L.</i>	Polygonum amphibium <i>L.</i>
Opuntia Rafinesquii <i>Engelm.</i>	Limnanthemum lacunosum <i>Gris.</i>
Artemisia frigida <i>Willd.</i>	Boutelona oligostachya <i>Torr.</i>

E. C. HOWE, M. D., New Baltimore, N. Y.

Acnida cannabina <i>L.</i>	Gymnosporangium Juniperi <i>Lk.</i>
Rumex orbiculatus <i>Gr.</i>	G. clavipes <i>C. & P.</i>
R. Patientia <i>L.</i>	Podisoma fuscum <i>Duby.</i>
Biatora russula <i>Mont.</i>	Hendersonia Robiniae <i>West.</i>
Puccinia Menthæ <i>Pers.</i>	Clasterisporium caricinum <i>Schw.</i>
P. Polygonorum <i>Lk.</i>	Sphærotheca Castagnei <i>Lev.</i>
Trichobasis Toxicodendri <i>B. & R.</i>	Podosphæra biuncinata <i>C. & P.</i>
Lappa offic. v. tomentosa <i>Gr.</i>	

W. R. GERARD, Poughkeepsie, N. Y.

Agaricus rutilans <i>Schæff.</i>	Diatrype discreta <i>Schw.</i>
Microthyrium Smilacis <i>De Not.</i>	Hypoxyton vernicosum <i>Schw.</i>
Dinemasporium Robiniae <i>Gerard.</i>	Hysterium tortile <i>Schw.</i>
Darluca filum <i>Cast.</i>	H. commune <i>Fr.</i>
Æcidium Convallariæ <i>Schum.</i>	H. insidens <i>Schw.</i>
Periconia calicioides <i>Fr.</i>	H. pulicare <i>Fr.</i>
Oidium simile <i>Berk.</i>	H. vulvatum <i>Schw.</i>
Torrubia ophioglossoides <i>Fr.</i>	Podosphæra biuncinata <i>C. & P.</i>

Hon. G. W. CLINTON, Buffalo, N. Y.

Scirpus Clintonii <i>Gr.</i>	Puccinia Menthæ <i>Pers.</i>
Carex capillaris <i>L.</i>	P. Prunorum <i>Lk.</i>
Equisetum palustre <i>L.</i>	P. Mariæ-Wilsoni <i>Clinton.</i>
Merulius lacrymans <i>Fr.</i>	Æcidium Convallariæ <i>Schum.</i>
Cystopus cubicus <i>Str.</i>	Dothidea Trifolii <i>Fr.</i>
Onygena equina <i>Pers.</i>	Rhytisma Ilicis-Canadensis <i>Schw.</i>
Diatrype Cercidicola <i>B. & C.</i>	Sphæria leucoplaca <i>B. & R.</i>
Hypoxyton atropurpureum <i>Fr.</i>	Uncinula macrospora <i>Pk.</i>
Sphærotheca Castagnei <i>Lev.</i>	U. Clintonii <i>Pk.</i>
Microsphæra holosericea <i>Lev.</i>	U. Ampelopsidis <i>Pk.</i>

HENRY GILLMAN, Detroit, Mich.

Lemna trisulca <i>L.</i>	Lemna polyrrhiza <i>L.</i>
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C. F. AUSTIN, Closter, N. J.

Conomitrium Hallianum <i>Sulliv.</i>	Bryum uliginosum <i>Brid.</i>
Trichostomum lineare <i>Swartz.</i>	B. Lescurianum <i>Sulliv.</i>
Mnium rostratum <i>Schwægr.</i>	Plagiothecium elegans <i>Hook.</i>
Dicranum spurium <i>Hedw.</i>	P. Mullerianum <i>Schp.</i>
Hypnum micr. v. anisocarpum <i>Br. Eu.</i>	Lejeunia hamatifolia <i>Dumort.</i>

S. T. OLNEY, Providence, R. I.

By Exchange.

Carex Nuttallii Schw.	Carex glabra Boott.
C. exilis Dew.	C. Purshii Olney.
C. Muskingumensis Schw.	C. Bebbii Olney.
C. scoparia Schk.	C. tenera Dew.
C. lagopodioides Schk.	C. alata Torr.
C. albolutescens Schw.	C. Houghtonii Torr.
C. straminea Schk.	C. filifolia Nutt.
C. silicea Olney.	C. arenaria L.
C. foenea Willd.	C. stricta Lam.
C. littoralis Schw.	C. torta Boott.
C. juncea Willd.	C. gynandra Schw.
C. panicea L.	C. crinita Lam.
C. Torreyi Tuck.	C. conoidea Schk.
C. Hitchcockiana Dew.	C. granularis Muhl.
C. Smithii Porter.	C. glaucodea Tuck.
C. virescens Muhl.	C. extensa Good.
C. flava L.	C. scabrata Schw.
C. cap. v. elongata Olney.	C. vestita Willd.

UNIVERSITY OF NORWAY, Christiana, Norway.

Usnea barbata Fr.	Theloschistes parietinus Vorn.
Alectoria sarmentosa Ach.	Lecanora pallescens Schær.
Ramalina fraxinea Ach.	L. tartarea Ach.
Evernia vulpina Ach.	L. cinerea Fr.
E. Prunastri Ach.	L. ventosa Ach.
Oetraria islandica Ach.	Cladonia pyxidata Fr.
C. juniperina Ach.	C. rangiferina Hoffm.
Sticta pulmonaria L.	Umbilicaria pustulata L.
Parmelia saxatilis Ach.	U. hyperborea Ach.
P. omphalodes Ach.	U. polyphylla L.
P. conspersa Ach.	Lepraria chlorina Ach.

(4)

PLANTS FOUND GROWING SPONTANEOUSLY IN THE STATE AND NOT BEFORE REPORTED.

LYTHRUM ALATUM *Pursh.*

Wet places in pastures. West Albany. Probably introduced from the west.

CHÆROPHYLLUM PROCUMBENS *Lam.*

Along the banks of Clyde river near Lyons. *E. L. Hankenson.*

ARCEUTHOBIUM PUSILLUM *Peck.*

Plant scattered or closely gregarious, small, 6"-10" high, simple or slightly branched, varying in color from olive-green to chestnut; leaf-like scales opposite, connate at the base, forming a cup-like sheath, broad, scarcely pointed; inflorescence diœcious, flowers terminal and lateral, single in the axils of the scales, sessile, terminal male flower-bud globose, lateral ones compressed, sepals and stamens three, the latter opposite the former; fruit ovate, subacuminate and a little more highly colored toward the apex, nodding on a shortly exerted peduncle, the seed involved in a viscid mucus, escaping from the base of the pericarp.

Flowers in spring; fruit mature in autumn. Living branches of spruce trees, *Abies nigra*. Sandlake, Rensselaer county.

The stems of the fruiting plant, and even the fruit itself, in the dried state, are somewhat quadrangular, but in the fresh state they are nearly terete. The species is related to *Arceuthobium campylopodium* Engelm., but is smaller, less branched, with the scales not cuspidate and the flowers opening earlier in the season. It was detected near Warrensburgh, Warren county, by Mrs. L. Millington, a few weeks previous to its discovery in Sandlake, but I have seen no specimens from that locality. Its range is probably northward.

The trees on which it occurs in Sandlake grow on the low peaty borders of a cranberry marsh. They are few and small and have short leaves and a bushy starved appearance. Such trees in some localities are called "*bastard spruce*." I suspect the feeble condition of the tree to be the occasion not the result of the attack of the parasite. All the plants, so far as I have observed, grow on the younger parts of the branches, but never on the young and tender shoot of the current season. Considering this as the *first* internode in our progress from the extremity of an affected branch toward the trunk whence it has its origin, we shall find, in September, small hemispherical buds just emerging from the bark of the *second*, small plants with flower-buds occupying the *third*, and

full grown plants with mature fruit on the *fourth*. In no instance were mature fruiting plants found on internodes younger than this. On the other hand, however, a few rather large and slightly branched plants were found on the *fifth* and *sixth* internodes. Thus it is evident that this plant requires three seasons for its entire growth and the perfecting of its fruit. In the first season the plant emerges from the bark, in the second it forms its flower-buds, in the third it blossoms, the male plants perishing soon after, the fertile or female plants enduring until the ripening of the fruit in autumn. It is possible that the seeds may sometimes germinate on internodes older than those next to the young shoots of the season or else that the plant may sometimes continue longer than the third season as is indicated by the few specimens on the fifth and sixth internodes. I thought I detected a slight curvature and prolongation of the pith or central portion of the stem below the apparent base of the stem, whence it is not improbable that there is a subcortical or creeping stem which advances with the growth of the branch from year to year, sending up successive crops of plants. This would explain most readily the great abundance of plants and their regular gradation on successive internodes, but I failed to trace any such subcortical connecting stem.

How are the seeds disseminated? Having visited the locality of the plant one month subsequent to its discovery in September, I was a little surprised to find almost no fruit-bearing specimens left. In their stead were here and there little heaps of fragments of stems, fruit and seeds all intermingled, adhering to each other and to the branches by the viscid coating of the seeds, in such a manner as to suggest the idea that some insect or bird had been among the plants, breaking them down and perhaps feeding upon the fruit.

I have in no instance found both the male and the female plants on the same branch, nor even on the same tree. If such a remarkable separation is constant it would be interesting to know the cause of it.

UTRICULARIA STRIATA *Lec.*

Wading River, Long Island. *E. S. Miller.*

UTRICULARIA PURPUREA *Walt.*

Wading River, L. I. *Miller.*

RUMEX PATIENTIA *L.*

New Baltimore, Greene county. *E. C. Howe.*

RHYNCHOSPORA MACROSTACHYA *Torr.*

Wading River. *Miller.*

ELEOCHARIS ROBBINSII *Oakes.*

Long Pond near Wading River. *Miller.*

ORTHOTRICHUM PECKII S. & L., *ined.*

Stems tufted, simple or sparingly divided, 4"-6" high; leaves lanceolate, acute, costate to the apex, recurved on the margins, minutely papillose; areolation subrotund above, quadrate below; capsule terminal, subimmersed, oblong, eight-ribbed and yellowish-brown when dry; peristome single, teeth eight, divided to the base, the parts sometimes separating and appearing like sixteen distinct teeth; calyptra tawny, pilose with long hyaline dentate hairs; spores subglobose, rough, .0005'-.0006' in diameter.

Damp, shaded rocks. Helderberg Mts. June.

This moss usually presents a sordid, uninviting appearance. The foliage is dark green or blackish, and is often incrustated by minute algæ.

ORTHOTRICHUM SORDIDUM S. & L., *ined.*

Trees. Sharon Springs. June.

This plant is larger than *O. Ohioense* S. & L. (formerly *O. Canadense*), and more branched. The dry capsule is pale yellow as in that species, ribbed and slightly contracted below the mouth, with the peristome double. Our specimens are not in proper condition for full description.

POLYTRICHUM STRICTUM Menz. *

Swamps and summits of the Adirondack Mts. June and July.

This was formerly deemed a variety of *P. juniperinum*, but it is now regarded by most bryologists as a good species.

HYPNUM PECKII Austin n. sp.

"Cæspites cineraceo vel læte virides. Caulis tenuis, strictus, vage vel subpinnatim ramosus, late cæspitosus, prostratus, intertextus, fragilis. Folia conferta, e basi anguste lanceolata erectaque longe filiformi-acuminata, leniter falcata vel substricta; acuminine flexuoso summo apice serrato varie directo, basis angulis rotundatis, haud excavatis, subrotundo-areolatis; areolis cæteris oblongis linearibusve, omnibus minutis valde chlorophyllosis; costa in acumen producta. Flores monoico-polygami; folia perichætialia externa costata, haud sulcata (juvenilia), intima minuta, angustissima, ecostata. Flos masc. parce paraphysata, fœm. eparaphysata. Folia perigonialia subæque lata ac longa, apice abruptissime filiformi attenuata, distinctius costata. Fructus ignotus." Austin MS.

Rocks in Panther Gorge, at the eastern base of Mt. Marcy. July. This moss, by its prostrate and closely entangled mode of

growth, forms a thin carpet over the surface of the rocks. The stems are slender and quite fragile, and the leaves, which somewhat resemble those of *H. uncinatum* in outline, are much more straight and appressed.

LEJEUNIA HAMATIFOLIA *Dumort.*

Rocks in rivulets. Rockland county. *Austin.*

PLACODIUM ELEGANS *Lk.*

Rocks. Helderberg Mts. May.

PANNARIA NIGRA *Nyl.*

Rocks. Buffalo. *Miss Wilson.* Spring Valley. *Austin.*
Walls of Ft. Putnam, West Point. June.

PANNARIA CRASSOPHYLLA *Tuck.*

Rocks. Adirondack Mts., near the outlet of Lower Ausable Lake. July. A very rare species.

PANNARIA TRIPTOPHYLLA *Ach.*

Rocks. Buffalo. *Miss Wilson.*

BIATORA DECOLORANS *Hoffm.*

Thin soil covering rocks. Dix's Peak and Mt. McIntyre. July.

BIATORA RUSSULA *Mont.*

Bark of maple trees. New Baltimore. *Howe.*

RINODINA ASCOCISCANA *Tuck.*

Bark of trees. Buffalo. *Miss Wilson.*

ARTHONIA SPECTABILIS *Flot.*

Bark of trees. Buffalo. *Miss Wilson.* Portville.

VERRUCARIA PAPILLOSA *Ach.*

Rocks. Buffalo. *Miss Wilson.*

AGARICUS (AMANITA) RUSSULOIDES *Peck.**

Pileus at first ovate, then expanded or convex, rough with a few superficial warts, or entirely smooth, viscid when moist, widely striate-tuberculate on the margin, pale yellow or straw color; lamellæ close, free, narrowed toward the stem, white; stem firm, smooth, stuffed, annulate, equal or slightly tapering upward, bul-

* The species to which the author's name is appended have been published in the *Bulletin of the Buffalo Society of Natural Sciences*, vol. 1, pp. 41-72.

bous; annulus thin, soon vanishing; volva fragile, subappressed; spores broadly elliptical, .0004' long, .0003' broad.

Plant 2'-3' high, pileus 1.5'-2' broad, stem 3"-5" thick.

Grassy ground in open woods. Greenbush. June.

This species is remarkable for the thin striate-tuberculate margin of the pileus, which causes it to resemble some species of *Russula*.

AGARICUS ILLINITUS Fr.

Ground in woods. North Elba, Essex county. July.

This is the variety with a smooth margin.

AGARICUS (TRICHOLOMA) DECOROSUS Peck.

Pileus firm, at first hemispherical, then convex or expanded, coated with numerous brownish subsquarrose tomentose scales, dull ochraceous or tawny; lamellæ close, rounded and slightly emarginate at the inner extremity, the edge subcrenulate; stem solid, equal or slightly tapering upward, white and smooth at the top, elsewhere tomentose-scaly and colored like the pileus; spores broadly elliptical, .0002' long, .00015' broad.

Plant subcæspitose, 2'-4' high, pileus 1'-2' broad, stem 2"-4" thick.

Rotten logs in woods. Catskill Mts. and Rock City, Allegany county. September and October. (Plate 1, figs. 1-4.)

This is a fine species but not common. The margin of the pileus sometimes extends beyond the lamellæ.

AGARICUS (TRICHOLOMA) MULTIPUNCTUS Peck.

Pileus fleshy, not thick, brittle, broadly convex, sometimes centrally depressed or subumbilicate, densely dotted with minute brown or blackish scales, yellowish-brown, the disk often darker; lamellæ close, slightly emarginate, yellow, sometimes with a darker edge; stem subequal, squamulose-punctate, hollow, colored like the pileus; spores suborbicular, .00016' in diameter.

Plant subcæspitose, 1'-2' high, pileus 1'-2' broad, stem 2"-4" thick.

Rotten logs in woods. Sandlake and Adirondack Mts. July and August.

This species is related to *A. rutilans*.

AGARICUS RUTILANS Schæff. Poughkeepsie. Gerard.

AGARICUS HORDUS Fr.

Ground in open woods. Helderberg and Adirondack Mts. June and July.

This Agaric is remarkable for its broad subdistant lamellæ which are very thin and often found split transversely. Sometimes the thin pileus is also split and occasionally virgate. It frequently grows to a very large size and is usually much infested by insects.

AGARICUS (TRICHOLOMA) VIRESCENS *Peck.*

Pileus convex or expanded, sometimes depressed centrally, moist, smooth, dingy green, the margin sometimes wavy or lobed; lamellæ close, gradually narrowed toward the outer extremity, rounded or slightly emarginate at the inner, white; stem subequal, stuffed or hollow, thick but brittle, whitish, sometimes tinged with green; spores broadly elliptical, .0002' long, .00015' broad.

Plant 3'-5' high, pileus 3'-5' broad, stem 6"-12" thick.

Mossy ground in open woods. North Elba. July.

The dull smoky-green hue of the pileus is the distinguishing feature of this species.

AGARICUS (TRICHOLOMA) FALLAX *Peck.*

Pileus firm, convex or expanded, rarely depressed in the center, moist, smooth, dull saffron color; lamellæ narrow, crowded, tapering toward the outer extremity, rounded at the inner, yellow; stem short, smooth, stuffed or hollow, usually tapering toward the base, colored like the pileus; spores minute, subelliptical, .00012' long.

Plant gregarious, 1'-1.5' high, pileus 6"-15" broad, stem 1" thick.

Ground under spruce and balsam trees. North Elba. July. (Plate 1, figs. 5-8.)

This is a pretty little white-spored Agaric, liable from its general appearance to be mistaken for some species of *Naucoria*. I have seen it in very wet weather only. It appears to be allied to *A. cerinus*.

AGARICUS SINOPICUS *Fr.*

Burnt ground in open places. North Elba. July.

The odor of fresh meal is very distinct in our specimens, but the lamellæ are not crowded. They are sometimes branched and have the interspaces reticulated. The spores are .0003' long, .0002' broad.

AGARICUS (COLLYBIA) SUCCOSUS *Peck.*

Pileus firm, between cartilaginous and fleshy, campanulate or convex, minutely tomentose, cinereous or brownish-gray, the margin exceeding the lamellæ and incurved; lamellæ slightly ascending, thin, close, emarginate and slightly decurrent-toothed, tapering toward the outer extremity, whitish; stem firm, equal or slightly

tapering upward, often curved, minutely tomentose, containing a whitish pith; spores subglobose, minute, .00015' in diameter; flesh abounding in a thin watery or serum-like juice, changing to purplish and black when cut.

Plant 1'-3' high, pileus 6"-12" broad, stem 1" thick.

Rotten logs in woods. Portville, Cattaraugus county. September.

This is a very remarkable and somewhat aberrant species. In color it resembles dark forms of *Hydnum gelatinosum*. In texture it is more firm and fleshy than that plant. The stem is sometimes eccentric. The juice exudes from wounds as in species of *Lactarius*.

AGARICUS (COLLYBIA) MYRIADOPHYLLUS Peck.

Pileus very thin, broadly convex, then expanded or depressed, sometimes umbilicate, hygrophanous, watery brown when moist, pale ochraceous or alutaceous when dry; lamellæ very numerous, narrow, crowded, rounded at the stem and slightly emarginate, brownish-lilac; stem equal, smooth, stuffed, reddish-brown; spores subelliptical, minute, .00012' long.

Plant subcaespitose, 1'-1.5' high, pileus 8"-12" broad, .5" thick.

Rotten logs and fallen branches in woods. Portville. September.

The lamellæ are more close than in *A. dryophilus*, and remarkable for their singular color.

AGARICUS PELIANTHINUS Fr.

Mossy prostrate trunks of trees and among fallen leaves in woods. Adirondack Mts. and Greig. July and September.

AGARICUS (MYCENA) SUBCÆRULEUS Peck.

Pileus very thin, campanulate or convex, obtuse, striate, smooth, pale bluish-green; lamellæ narrow, close, tapering outwardly, white; stem slender, equal, pinkish white, slightly pruinose; spores subglobose, .00025' in diameter.

Plant caespitose, 2' high, pileus 4"-8" broad.

Trunk of a beech tree. Adirondack Mts. July.

The disk is more highly colored than the margin and the pileus has a separable cuticle.

AGARICUS (MYCENA) MINUTULUS Peck.

Pileus campanulate or convex, smooth, striatulate, papillate; lamellæ broad, subdistant, with a slight decurrent tooth; interspaces reticulated by transverse veinlets which run down on the

lamellæ; stem short, slender, firm, smooth or sprinkled with minute mealy particles.

Plant gregarious, white throughout, 8"-12" high, pileus 2"-4" broad. Bark of prostrate trunks in woods. Portville. September.

AGARICUS (MYCENA) ROSEOCANDIDUS *Peck.*

Pileus convex or broadly campanulate, subpapillate, striate nearly to the apex, white or rosy-red; lamellæ close, uncinatæ, white or rosy; stem slender, smooth, white.

Plant 2' high, pileus 4"-6" broad.

Among mosses in woods. Adirondack Mts. July.

Usually the whole plant is pure white, but sometimes the pileus has a delicate rosy hue, except on the apex and margin. In such specimens the lamellæ are tinged with the same color, and the delicate beauty of the whole plant can scarcely be surpassed. The striations of the pileus are clearly seen in the dried specimens. The papilla is sometimes very prominent, sometimes wanting.

AGARICUS DEBILIS *Bull.*

Under spruce and balsam trees. North Elba. July.

AGARICUS RORIDUS *Fr.*

Mossy ground in woods. North Elba. July.

AGARICUS PTERIGENUS *Fr.*

Dead stems of ferns, *Onoclea sensibilis*. Sandlake. September.

The margin of the pileus as well as of the lamellæ is sometimes more highly colored than the rest of the plant.

AGARICUS (OMPHALIA) OLIVARIUS *Peck.*

Pileus convex, umbilicate, smooth, yellowish-olive; lamellæ arcuate, decurrent, subdistant, pale yellow; stem equal, short, smooth, hollow, colored like the pileus; spores subglobose or broadly elliptical, .00026' long.

Plant 1'-1.5' high, pileus 1' broad, stem 1" thick.

Burnt ground under balsam trees. North Elba. July.

AGARICUS GRACILLIMUS *Weinm.*

Dead twigs and leaves in wet places. Sandlake. September.

Our plant does not agree strictly with the description, since the lamellæ are scarcely decurrent and the stem is slightly thickened at the base where it is furnished with an abundance of radiating flocci. It is at least a well marked variety, and may prove to be a distinct species.

AGARICUS (PLUTEUS) STERILOMARGINATUS Peck.

Pileus broadly convex or expanded, with a slight oppressed tomentum, white with a faint pinkish tinge, the thin margin exceeding the lamellæ; lamellæ close, subventricose, free, minutely eroded on the edge, tapering outwardly, pale flesh-color; stem short, equal, solid, smooth, sometimes curved, whitish; spores subglobose, angular, with a central nucleus, .00025' in diameter.

Plant 1' high, pileus 6"-12" broad, stem .5" thick.

Rotten logs and sticks in woods. Portville. September.

The pileus is sometimes cracked, and then it has the appearance of being coated with a thin, scaly paste.

AGARICUS (PHOLIOTA) ALBOCRENULATUS Peck.

Pileus fleshy, firm, convex or campanulate, subumbonate, viscid, rough with dark-brown or blackish floccose scales, yellowish-brown; lamellæ broad, subdistant, emarginate, white-crenulate on the edge, grayish, then ferruginous; stem firm, equal or slightly tapering upward, sometimes curved, stuffed or hollow, squamose and pallid below the evanescent ring, white and slightly furfuraceous above; spores subelliptical, .00045' long, .00025' broad.

Plant 3'-5' high, pileus 2'-3' broad, stem 3"-5" thick.

Mossy base of maple trees in woods. Adirondack Mts. July and August.

This is a large species, quite rare and somewhat variable. I have never been able to find more than one or two plants in a place. The scales of the pileus sometimes disappear, leaving the surface mottled with dark-colored spots. The spores are subacute at each end and the curvature of one side is greater than that of the other. Under a lens the lamellæ appear to be beaded on the edge with minute milky globules.

AGARICUS (PHOLIOTA) ACERICOLA Peck.

Pileus thin, except on the disk, broadly convex, glabrous, rugose-reticulated or corrugated, hygrophanous, yellow; lamellæ close, emarginate, grayish, then ferruginous-brown; stem equal or thickened at the base, hollow, fibrillose-striate, white; annulus large, membranaceous, persistent, deflexed, usually stained by the spores which are elliptical, .00035' long, .00025' broad.

Plant 3'-4' high, pileus 2'-3' broad, stem 3"-5" thick.

Mossy trunks of maple trees in woods. North Elba. August.

The large flabby annulus and lacunose pileus enable this species to be easily recognized.

AGARICUS (PHOLIOTA) DISCOLOR Peck.

Pileus thin, convex, then expanded or slightly depressed, smooth, viscid, hygrophanous, watery-cinnamon and striatulate on the margin when moist; bright ochraceous-yellow when dry; lamellæ close, narrow, pallid then pale ferruginous; stem equal, hollow, fibrillose-striate, pallid; annulus distinct, persistent; spores elliptical, .00028' long, .0002' broad.

Plant subcaespitose 2'-3' high, pileus 8"-16" broad, stem 1' thick.

Old logs in woods. Greig. September.

The change of color from the moist to the dry state is very marked. This species resembles *Agaricus autumnalis*, in which the annulus is fugacious and the spores are longer. The edge of the lamellæ in both is white-flocculose.

AGARICUS (HEBELOMA) PALLIDOMARGINATUS Peck.

Pileus brittle, broadly convex, sometimes irregular, smooth, hygrophanous, brown with a pale margin when moist, ochraceous and subatomaceous when dry; lamellæ close, thin, rounded and slightly emarginate at the stem, tapering outwardly, ochraceous-brown; stem usually long and flexuous, equal or tapering upward, hollow, a little paler than the pileus, white-floccose at the base; spores subelliptical, .0004' long, .0002' broad.

Plant gregarious, 1'-3' high, pileus 6"-12" broad, stem 1" thick.

Ground in swamps and wet places. Sandlake. September.

AGARICUS PUTRIGENA B. & C.

Dead branches. North Elba. July.

AGARICUS SQUAMOSUS Fr.

Among fallen leaves in open woods. Portville. September.

Our specimens have the pileus red, the lamellæ olivaceous and spotted, the annulus not distant and the spores .00045' long, and must therefore be regarded as varying somewhat from the typical form of the species.

AGARICUS (HYPHOLOMA) SACCHARINOPHILUS n. sp.

Pileus ovate or hemispherical, then convex, smooth, hygrophanous, pale alutaceous; lamellæ close, narrow, rounded at the stem, pallid, then rosy-brown; stem equal, stuffed, pruinose at the top, substrate, white; spores elliptical, nucleate, .0003' long.

Plant caespitose, 2' high, pileus 1'-2' broad, stem 2" thick.

Mossy base of the sugar maple. North Elba. September.

AGARICUS (HYPHOLOMA) HIRTOSQUAMULOSUS Peck.

Pileus firm, convex or expanded, hairy-squamulose, hygrophanous, grayish-brown when moist, gray when dry; lamellæ narrow, rounded at the stem, gray, then brown; stem short, firm, equal, hollow, slightly hairy-squamulose and colored like the pileus; spores subelliptical, cymbiform, nucleate, .00025' long.

Plant 1' high, pileus 6"-10" broad, stem scarcely 1" thick.

Prostrate trunks of maple trees in woods. Portville. September

The minute hairy tufts of the pileus are similar in appearance to those on *A. melleus*.

AGARICUS HIASCENS Fr.

Damp ground under willows. West Albany. June.

COPRINUS VARIEGATUS Peck.

Pileus fleshy, thin, fragile, oblong-ovate, then campanulate, obtuse, hygrophanous, pale watery-brown when moist, whitish or cream color when dry, variegated by scales or patches of a superficial ochraceous tomentum, the margin finely striate; lamellæ lanceolate, crowded, ascending, free, white, then rosy-brown, finally black; stem equal, brittle, hollow, white, at first peronate-annulate, then floccose-pruinose, with white branching root-like threads at the base; spores subelliptical, .00033' long.

Plant densely caespitose, 3'-5' high, pileus 1'-1.5' broad, stem 2"-4" thick.

Thin soil and decaying leaves covering rocks. Slope of Crows Nest near West Point. June.

When young the whole plant is coated by an abundant superficial floccose-tomentum. This soon breaks up into loose scales or patches which peel off in flakes, revealing the smooth pileus beneath. This character will readily distinguish this plant from *C. atramentarius* to which it is allied. The slight abrupt annulus soon vanishes.

HYGROPHORUS CHLOROPHANUS Fr.

Mossy ground. Greenbush. June.

Ours is a small form, var. *coccinea*, with the disk of the pileus bright red. This color gradually fades into yellow on the margin where it is varied by the brighter colored striations.

MARASMIUS SEMIHIRTIPES Peck.

Pileus thin, tough, nearly plane or depressed, smooth, sometimes striate on the margin, hygrophanous, reddish-brown when moist,

alutaceous when dry, the disk sometimes darker; lamellæ subdistant, reaching the stem, slightly venose-connected, subcrenulate on the edge, white; stem equal, even or finely striate, hollow, smooth above, velvety-tomentose toward the base, reddish-brown.

Plant gregarious, inodorous, 1'-2' high, pileus 6"-9" broad, stem .5" thick.

Ground among fallen twigs and leaves. West Point. June.

MARASMIUS UMBONATUS Peck.

Pileus thin, tough, expanded, umbonate, smooth, even or substrate, alutaceous, the margin at first incurved; lamellæ narrow, subdistant, reaching the stem, venose-connected, sometimes branched toward the outer extremity, white; stem equal, solid, velvety-tomentose, tawny below, paler above.

Plant gregarious, 1'-1.5' high, pileus 6"-9" broad, stem .5" thick.

Ground under balsam trees. North Elba. July.

MARASMIUS LANGUIDUS Fr.

Dead stems of herbs. Tyre, Seneca county. September.

LENTINUS TIGRINUS. Fr.

Decaying wood. Tyre. September.

Nearly all the specimens found had the lamellæ overgrown by a dense white mass of parasitic fungoid filaments.

LENTINUS VULPINUS Fr.

Prostrate trunks of ash trees. Portville, September.

LENTINUS HÆMATOPUS Berk.

Pileus smooth, expanded or centrally depressed, lobed on the margin, pale yellow or cream color; lamellæ decurrent, often wavy near the inner extremity, distinctly toothed on the inner edge, white; stem short, firm, eccentric, smooth, dark red or chestnut color; spores elliptical, with one or two nuclei, .00025' long.

Plant 1' high, pileus 2' broad.

Prostrate trunks of striped maple, *Acer Pennsylvanicum*. Adirondack Mts. July.

A rare species found but once and then in the deep shades of the Adirondack forests. It is readily known by its smooth pileus and short red or chestnut-colored stem. Our specimens differ from the type in having the pileus lobed and the stem darker colored and eccentric.

BOLETUS SEPARANS Peck.

Pileus thick, convex, smooth, shining, sometimes deeply lacunose, brownish-lilac; tubes plane or slightly depressed around the stem, at first white, closed and attached to the stem, then by the expansion of the pileus usually torn from it, small, subrotund, yellow or brownish-yellow; stem solid, nearly equal, distinctly reticulated, dull-lilac; spores .00055' long, .00022' broad; flesh white, unchangeable.

Plant 3'-4' high, pileus 3' broad, stem 6"-10" thick.

Grassy ground in open woods. Greenbush. August.

This was mentioned in a previous report as a marked variety of *B. edulis*, but having observed it two years in succession, and finding its distinctive features quite constant, I am induced to consider it a distinct species. The dried specimens have a strong, disagreeable, acid-like odor. Little webby filaments may often be seen stretched across the space between the stem and the tubes that have been torn from it. In dry weather this separation of the stem and the tubes does not always take place.

BOLETUS AFFINIS Peck.

Pileus dry, minutely tomentulose, even or slightly rugose, chestnut-colored, soon fading to tawny or ochraceous, the cuticle sometimes cracking into areas; tubes plane or convex, attached to the stem and sometimes depressed around it, at first white and closed, then yellow, small, unequal, angular or subrotund; stem solid, unequal, smooth, rarely reticulated at the top, pallid or tinged with dull red; spores elliptical, .00035' long, .00016' broad; flesh white, unchangeable.

Plant 2' high, pileus 2'-3' broad, stem 6"-10" thick.

Grassy ground in open woods. Greenbush. July.

At first sight this plant bears some resemblance to *B. castaneus*. The stem is usually ventricose or tapering toward the base; sometimes compressed at the top. It is seldom found uninfested by the larvæ of insects. The margin of the pileus is sometimes revolute. Like the next preceding species, it belongs to the section *Edules*.

BOLETUS MODESTUS Peck.

Pileus firm, convex, often irregular, dry, minutely tomentulose, yellowish-brown; tubes nearly plane, attached and subdecurrent, pale ochraceous, angular and compound; stem equal, brown, reticulated with darker lines; spores elliptical, .0004' long, .0002' broad; flesh-gray or pinkish-gray.

Plant 2' high, pileus 2' broad, stem 2"-4" thick.

Grassy ground in open woods. Greenbush. August.

BOLETUS CASTANEUS Bull.

Grassy ground in open woods. Greenbush. June.

The spores in this plant are yellow, not white as indicated in Fries' *Epierisis*.

POLYPORUS RESINOSUS Fr.

Prostrate trunks of hemlock trees, *Abies Canadensis*. Sandlake and Portville. August and September.

POLYPORUS PICIPES Fr.

A single specimen of this species was found on a fallen branch at Center.

MERULIUS LACRYMANS Fr.

Decaying wood in close, damp places. Greenbush. October.
On a flower-pot in a green-house. Buffalo. Clinton.

HYDNUM STRIGOSUM Swartz.

Prostrate trunk of an ash tree. Portville. September.

CRATERELLUS CÆSPITOSUS Peck.

Pileus fleshy, tough, irregular, expanded, centrally depressed or subinfundibuliform, smooth, moist, variable in color, greenish-yellow, pinkish-brown, blackish, the margin usually decurved and somewhat lobed; hymenium at first smooth, then rugose-wrinkled, the folds decurrent on the short solid tough stem which is either central or eccentric; spores oblong, obtuse, sometimes slightly curved, .00035' to .00045' long.

Plant cæspitose, 6"-12" high, pileus 6"-10" broad.

Rotten logs in a wooded swamp. Portville. September.

This is a singular and somewhat aberrant species. The color is variously modified by blue, green, yellow, olivaceous and violaceous tints. The pilei sometimes grow together, forming an intricate, irregular tuft.

THELEPHORA ANTHOCEPHALA Fr.

Ground in open woods. Greenbush. August.

THELEPHORA PEDICELLATA Schw.

Living branches of alder trees. Indian Lake. October.

SOLENTIA OCHRACEA *Hoffm.*

Rotten wood. Savannah, Wayne county. October.

CLAVARIA RUFESCENS *Schæff.*

Ground in woods. Sandlake. *M. Peck.* Greenbush. August.

This plant occurs after heavy rains. It sometimes grows in continuous rows several feet in extent. The pinkish-red tips of the branches fade with age. The axils are rounded and the plant is quite fragile. Fries considers it a variety of *C. aurea*.

CLAVARIA PUSILLA *Peck.*

Stem slender, solid, rather tough, much and irregularly branched; branches unequal, divergent; tips acute.

Plant scarcely 1' high, yellowish.

Ground under spruce and balsam trees. North Elba. September.

This plant is distinguished from *C. tetragona* by its terete stems and irregular ramification.

CLAVARIA CLAVATA *Peck.*

Simple, straight, clavate, obtuse, smooth, not hollow, yellow when fresh, rugose-wrinkled and orange-colored when dry, 4"-6" high.

Damp shaded banks by road-sides. Sandlake. June. (Plate 1, fig. 9.) The surface of the ground where it grows is covered by a green confervoid stratum.

TREMELLA ALBIDA *Huds.*

Dead birch trees. Sandlake. October.

TREMELLA COLORATA *Peck.*

Plant gregarious, swollen, subglobose or irregular, soft, pulpy, raisin-colored when moist, externally black and internally brownish-pink when dry; filaments colored in the mass; spores globose, colored like the hymenium when mature, .0005' to .0007' in diameter.

Bark of dead ash trees. Tyre. September.

The plants are generally about one-fourth of an inch thick and high. They burst through the epidermis and stain the surface of the bark a dull reddish color, but within it is stained black. The species may be readily known by the globose colored spores.

STEMONITIS TYPHOIDES *DC.*

Rotten stumps. Greenbush. June.

ARCYRIA INCARNATA *Pers.*

Rotten wood and bark of sticks. Greenbush.

This plant is less frequent than *A. puniceus*.

ARCYRIA GLOBOSA *Schw.*

Fallen chestnut burrs. Sandlake. September.

PHOMA NEBULOSUM *Berk.*

Dead stems of herbs. Albany. May.

CRYPTOSPORIUM SCIRPI *n. sp.*

Perithecia gregarious on a pallid spot, subrotund or quadrangular, black; spores elongated-fusiform, slightly curved, hyaline, .0006' to .0007' long.

Dead leaves and sheaths of *Scirpus fluviatilis*. Castleton, Rensselaer county. June.

I find mingled with the fruit of this plant, long clavate, septate, slightly colored spores. Do both belong to one species?

GELATINOSPORIUM NOV. GEN.

Perithecia submembranaceous, erumpent, rupturing at the apex, wrinkled when dry; spores elongated, filiform, simple.

When moist the perithecia gap open at the apex, revealing the whitish gelatinous mass of spores within.

GELATINOSPORIUM ABIETINUM *n. sp.*

Perithecia small, scattered, black; spores excessively elongated, subfiliform, tapering to a long narrow point at each end, more or less curved, usually containing a row of nuclei, subhyaline .0025' to .003' long.

Dead branches of hemlock trees. Greenbush. April.

GELATINOSPORIUM BETULINUM *n. sp.*

Perithecia large, clustered, crowded, prominent, bursting through the epidermis by a transverse fissure, irregularly ruptured at the apex, black; spores hyaline, subfiliform, pointed at each end, containing a row of nuclei, .0013' to .0016' long.

Dead branches of *Betula lenta*. Greenbush. June.

Usually there are two or three perithecia in a cluster. When dry they appear to form a single irregular mass.

SPHERONEMA TRUNCATUM *Fr.*

Rotten wood. North Elba. July.

SPHÆRONEMA CÆSPITOSUM *n. sp.*

Perithecia cæspitose, cylindrical or slightly tapering upward, black; globule black, shining; spores subfusiform, .00045' long.

Dead branches of *Ilex verticillata*. Sandlake and Center. May and June.

This species is remarkable for its tufted mode of growth and its black globule.

SPHÆRONEMA MINUTISSIMUM *n. sp.*

Perithecia scattered, minute, sphæriform or subconical, obtuse, easily separating from the matrix, black; globule whitish; spores oblong, simple, hyaline, .00028' long.

Dead branches of black cherry, *Prunus serotina*. Helderberg Mts. May.

The perithecia are seated on the inner bark and leave a small round cavity in the epidermis when broken off. They render the branch rough to the touch.

SPHÆRONEMA PALLIDUM *n. sp.*

Perithecia scattered, erumpent, subconical, obtuse, surrounded by the ruptured epidermis, black; globule pallid or whitish, persistent; spores fusiform, slightly curved, pointed at each end, usually containing two or three nuclei, .00065' long.

Dead branches of mountain ash, *Pyrus Americana*. Sandlake. June.

ACROSPERMUM COMPRESSUM *Tode.*

Dead stems of herbs. Guilderland and West Albany. May.

SPHÆROPSIS MALORUM *Berk.*

Old apples. New Scotland, Albany county. May.

SPHÆROPSIS PLATANI *n. sp.*

Perithecia hemispherical or convex, thin, black, white within, erumpent; ostiole minute, papillæform; spores elliptical or oblong, colored, .0007'-.001' long.

Fallen branches of *Platanus occidentalis*. Bethlehem. April. The rupture of the epidermis is usually triradiate.

SPHÆROPSIS PERICARPII *n. sp.*

Perithecia small, slightly elevated, hemispherical, covered by the epidermis, then rupturing it at the apex; spores colored, .0009' long.

Old husks of hickory nuts. Albany. May.

SPHÆROPSIS QUERCINA *n. sp.*

Perithecia convex, smooth, erumpent, blackish-brown or black, whitish within, surrounded by the whitish remains of the ruptured epidermis; spores elliptical, hyaline, .00035' long.

Dead branches of oak trees. Greenbush. May.

SPHÆROPSIS LINEARIS *n. sp.*

Perithecia small, subglobose, thickly scattered or seriatly placed, erumpent, black; spores elliptical or oblong, colored, .0008' to .001' long.

Dead branches of oak trees. Greenbush. May.

The rupture of the epidermis is often continuous over several perithecia, thus forming longitudinal lines or chinks in the bark. At first the perithecia are covered and minute whitish dots mark their position.

DIPLODIA VALSOIDES *n. sp.*

Perithecia clustered, nestling in the inner bark, tapering into long ostiola, which are united by an olivaceous stroma and erumpent through transverse fissures in the epidermis, black; spores oblong-elliptical, strongly constricted, colored, .00075' long.

Dead bark of white birch trees, *Betula populifolia*. Center. April.

In habit this is exactly like species of *Valsa*, but there are no asci present.

DIPLODIA PETIOLARIS *n. sp.*

Perithecia small, scattered, convex or depressed, black; spores elliptical, slightly constricted, usually with a nucleus in each cell, colored, .0008' long.

Petioles of fallen leaves. Greenbush. October.

DIPLODIA LIGNICOLA *n. sp.*

Perithecia scattered or crowded, prominent, subglobose, black; spores oblong, constricted, .0014' long, .0004' broad.

Decorticated wood of balsam trees, *Abies balsamea*. Adirondack Mts. July.

HENDERSONIA ROBINLE *West.*

Dead branches of locust trees. New Baltimore. *Howe*.

HENDERSONIA PLATANI *n. sp.*

Perithecia covered by the epidermis and adhering to it by the upper part, depressed, brownish-black or black, the small black

ostiole at length piercing the epidermis; spores black, shining, elliptical-oblong, triseptate, .002' long, oozing out and staining the bark black.

Fallen branches of *Platanus occidentalis*. Buffalo. Clinton. Bethlehem. April.

This closely resembles *Massaria atroinquinans* B. & C., of which it may prove to be a form.

HENDERSONIA SAMBUCCI n. sp.

Perithecia numerous, scattered, minute, black, at first covered by the epidermis, then piercing it; spores elliptical-oblong, colored, triseptate, .0005' long, .0002' broad.

Dead stems of *Sambucus pubens*. Knowersville, Albany county. May.

The immature spores are uniseptate.

DARLUCA FILUM Cast.

Various Uredines and *Uromyces Junci*. Poughkeepsie. Gerard. Albany. June.

SEPTORIA MIRABILIS n. sp.

Spots yellow or brown, angular, limited by the veinlets of the leaves; perithecia hypogenous, minute, opening by a circular orifice, pallid or yellowish; tendrils long, slender, fragile, several from the same perithecium, white; spores large, simple, oblong-obovate or subfusiform, .0013' to .0016' long, .0005' broad.

Fronds of *Onoclea sensibilis*. Sandlake. September.

This species is remarkable for the plurality of its tendrils and the size and shape of its spores. The spores are generally more pointed at one end than at the other.

SEPTORIA ACERINA n. sp.

Spots brown or yellow with a brown center, mostly angular; perithecia variable in size and shape, collapsed when dry; spores filiform, curved, simple or very obscurely septate, .0013' to .0016' long.

Upper surface of leaves of the striped maple. Keene, Essex county. July.

Sterile specimens are common but the fertile form is rare. This is distinct from *S. Aceris* B. & Br.

SEPTORIA SALICINA n. sp.

Spots suborbicular, brown with an arid center; perithecia small, brown, pezizoid when dry; spores filiform, curved, very unequal in length, obscurely two to four septate, .0016' to .0026' long.

Upper surface of leaves of *Salix lucida*. Keene. July.

SEPTORIA OCHROLEUCA *B. & C.*

Spots scattered, suborbicular, pallid, with a brown margin which is more conspicuous on the upper surface; perithecia central, minute, scattered, hypogenous, pallid or amber color; spores filiform, curved, simple, .001' long.

Leaves of chestnut trees. Sandlake. July.

I have seen no description of this species, but specimens received from Dr. Curtis under this name are identical with ours.

DINEMASPORIUM ROBINIÆ *Gerard in lit.*

Perithecia cup-shape, bristly, black; spores hyaline, .0002' long, the terminal bristles about as long as the spore.

Wood of locust trees. Poughkeepsie. *Gerard.*

DINEMASPORIUM GRAMINUM *Lev.*

Leaves of grasses. New Baltimore. *Rev. J. L. Zabriskie.* Old corn-stalks. Castleton. June.

The spores in this species are .00035' long, with the terminal bristles about as long as the spore.

DINEMASPORIUM HERBARUM *Cooke.*

Dead stems of herbs and rotten wood. Greenbush. May.

This is given in the Hand-book of British Fungi as a variety of the preceding species, but it is clearly distinct. The spores are about .0006' long with the terminal bristles scarcely one-third the length of the spore.

MICROPERA DRUPACEARUM *Lev.*

Dead branches of cherry trees. Center. August.

This was associated with young *Cenangium Cerasi* of which it may be a form.

DISCELLA CARBONACEA *B. & Br.*

Dead twigs of willows. Albany. May.

CYTISPORA CHRYSOSPERMA *Pers.*

Dead branches of poplars. Albany. May.

CHEIROSPORA BOTRYOSPORA *Fr.*

Dead branches of beech trees. Greenbush. June.

STILBOSPORA STAPHYLEÆ *Schw.*

Dead twigs of *Staphylea trifolia*. Helderberg Mts. May.

TORULA ALNEA *n. sp.*

Flocci tufted, erumpent, black, composed of nucleated joints about as long as broad, mostly slightly constricted at the septa, here and there strongly constricted.

Dead branches of alder trees. Buffalo. *Clinton*. New Baltimore. *Howe*. Adirondack Mts. July.

SPORENDONEMA MUSCÆ *Fr.*

Dead bodies of flies. Common. Autumn.

This is *Einpusa Muscæ* Cohn. It causes the death of the flies it attacks.

SPORIDESMIUM MORIFORME *n. sp.*

Spores collected in minute orbicular crowded black tufts, obovate or subelliptical, very obtuse; cells small, paler at the base where there is a subglobose, hyaline cell or peduncle nearly as broad as the spore which is .0013' to .0015' long.

Decorticated wood of apple trees. Sandlake. November.
The multicellular spores are suggestive of mulberries.

GYMNOSPORANGIUM JUNIPERI *Lk.*

Bark of *Juniperus Virginiana*. New Baltimore. *Howe*. June.

GYMNOSPORANGIUM CLAVIPES *Cooke & Peck.*

Sori mostly small and subrotund, sometimes confluent, convex, erumpent, orange; spores elliptical, obtuse, attached to a long hyaline peduncle which is gradually thickened toward the top, .0015' to .0018' long.

Living branches of *Juniperus Virginiana*. New Baltimore. *Howe*. Bethlehem. May.

This species differs from the preceding in its smaller sori and remarkably thickened peduncles. The apical part of the peduncle is sometimes wider even than the spore itself. The younger branches are slightly swollen where attacked by this fungus and the bark is scaly. When old the fungus becomes a thin shapeless gelatinous mass. The spores germinate at the extremities, each filament absorbing the contents of its own cell.

PODISOMA FUSCUM *Duby.*

Very young branchlets and "Cedar balls" of *Juniperus Virginiana*. New Baltimore. *Howe*. Bethlehem and Helderberg Mts. May.

This species is more abundant in the vicinity of Albany than its congener, *P. macropus*. It has a darker color than that species and the spores and spore tufts are shorter.

PUCCINIA PULCHELLA *Peck.*

For the details of this species and also of *P. linearis*, *P. obtecta*, *P. angustata*, *P. arundinacea*, *P. Caricis*, *P. Menthae*, *P. Myrrhis*, *P. variabilis* and *P. Marie-Wilsoni*, see the Synopsis of the genus *Puccinia* in the closing section of this report.

UROCYSTIS OCCULTA *Preuss. (Polycystis parallela B. & Br.)*

Leaves of grass. Flatbush, L. I. *Zabriskie*. May.

UROCYSTIS PUSILLA *Cooke & Peck.*

Spots none; sori oblong or linear, parallel, prominent, narrow, black; spores subglobose, irregular, usually two-celled, .0003' to .0004' in diameter.

Leaves of *Carex Pennsylvanica*. Bethlehem and Center. May and June.

UROMYCES TRIQUETRA *Cooke.*

Leaves of various species of *Hypericum* and of *Elodea Virginica*. North Elba, Sandlake and Portville. July to October.

UROMYCES EUPHORBIE *Cooke & Peck.*

Leaves generally stained with red or purple; sori amphigenous, subrotund, slightly convex, surrounded by the ruptured epidermis, ferruginous-brown or blackish-brown; spores subglobose, rough, often with a large nucleus, about .0008' in diameter; peduncle short, hyaline.

Leaves of *Euphorbia hypericifolia*. Albany and Center. August and September.

GYMNOSPORIUM ARUNDINIS *Cd.*

Base of dead stems of *Phragmites communis*. Watkins and Montezuma marshes. September.

PROTOMYCES ERYTHRONII *Peck.*

Spots stained with red or purple; spores growing in the tissues of the leaf, scattered or crowded, most often arranged in short series, large, globose, black, .002' to .0026' in diameter.

Leaves and petioles of *Erythronium Americanum*. Greenbush. May.

UREDO LEDICOLA *Peck.*

Spots small, definite, rarely confluent, suborbicular, reddish-brown, sometimes with a darker border; sori subrotund or irregu-

lar, surrounded by the ruptured epidermis; spores subglobose, rough, .0012' in diameter, orange, with a thick hyaline episore.

Upper surface of leaves of *Ledum latifolium*. Summit of Mt. Marcy. July.

This seems to me to be quite distinct from *U. Ledi* A. & S. which is said to grow on the lower surface of leaves of *L. palustre* and to form yellow spots.

PERIDERMIUM CEREBRUM *Peck*.

Peridia large, convex, erumpent, irregularly confluent, forming brain-like convolutions, white, rupturing irregularly, the cells granulose, radiate-striate on the margin; spores variable, ovate elliptical or subglobose, rough, yellow, .0008' to .0011' long.

Trunks and branches of young pines, *Pinus rigida*. Center. May.

This fungus forms excrescences from half an inch to two inches in diameter on the trunks and branches. On the smaller branches the excrescence puffs out equally on all sides of the branch. The outer bark comes off in large scales, revealing the bright yellow fungus which has produced the unseemly swelling.

This plant was first detected by Mr. J. A. Lintner, who brought me specimens and made known its locality.

CYSTOPUS CUBICUS *Str.*

Leaves of Canada thistle. Buffalo. *Clinton*.

RÆSTELIA AURANTIACA *Peck*. (Plate 1, figs. 10-12.)

Peridia deeply seated, cylindrical, fragile, soon lacerated, fugacious, white; spores subglobose, bright orange, about .001' in diameter, with a thick hyaline episore.

Fruit of *Amelanchier Canadensis*. New Baltimore. *Zabriskie*. Keene. July. Also on the fruit of *Crataegus*. Buffalo. *Clinton*.

It is remarkable that this species should have entirely escaped the notice of collectors hitherto and that it should now be detected, in one season, in three widely separated localities, by three different persons. The color of the spores will enable this plant to be readily distinguished from its congeners. It seems to occur on the unripe fruit only. The *Amelanchier* leaves and fruit are inhabited by three species of *Ræstelia*.

ÆCIDIUM CRASSUM *Pers.*

Leaves of buckthorn, *Rhamnus catharticus*. Albany. June.

ÆCIDIUM CALTHÆ *Grev.*

Leaves and petioles of *Caltha palustris*. Guilderland. May.

ÆCIDIUM HYPERICATUM Schw.

Leaves of *Hypericum ellipticum*. Poughkeepsie. Gerard.
North Elba. August.

ÆCIDIUM ASTERATUM Schw.

Leaves of Asters. North Greenbush. June.

ÆCIDIUM CONVALLARIE Schum.

Leaves of wild lilies. Poughkeepsie. Gerard. Buffalo. Clinton. June.

ÆCIDIUM GERARDIÆ Peck.

Spots small, subrotund, scattered, yellowish-green; peridia usually few, small, short, the mouth notched with spreading or recurved teeth; spores orange, .0008' in diameter.

Leaves of *Gerardia quercifolia*. Highlands near Cold Spring. June.

From four to ten peridia generally occupy each spot. The leaves turn black in drying but the spots often retain a greenish hue.

TRICHOBASIS TOXICODENDRI B. & R.

Spots small, brown, suborbicular; sori subrotund, sometimes confluent, reddish-brown; spores subovate, beautifully marked with longitudinal or oblique striations.

Leaves and petioles of *Rhus Toxicodendron*. New Baltimore. Howe.

This is probably the Uredo form of *Pileolaria brevipes*.

STILBUM TOMENTOSUM Schrad.

Growing on *Trichia clavata*. Portville. September.

ATRACHIUM FLAMMEUM B. & R.

Bark of living mountain ash. Sandlake. September.

FUSARIUM LATERITIUM Nees.

Old galls of *Celtis occidentalis*. Cold Spring. June.
Spores curved, .001' to .0013' long.

FUSARIUM ROSEUM Lk.

Dead stems of *Asclepias*. Castleton. June.

The spores in this species are more slender and .0016' to .0023' long.

ILLOSPORIUM ROSEUM *Fr.*

Growing on lichens, *Physica stellata*. Sandlake. October.
Buffalo. *Clinton*.

PERICONIA AZALEÆ *Peck.*

Plant small, .03'-.04' high, black; stem slightly tapering upward; head globose; spores subglobose or elliptical, colored, .0002' to .0003' long.

Twigs, capsules and old galls of *Azalea nudiflora*. New Scotland. June.

SPOROCYBE BYSSOIDES *Fr.*

Dead stems of herbs. West Albany. May.

MACROSPORIUM BRASSICÆ *Berk.*

Decaying cabbage leaves. Albany. August.

MACROSPORIUM CHIARTARUM *Peck.*

Flocci long, jointed, flexuous, branched, colored; branches widely spreading, often at right angles to the stem, somewhat nodulose; spores subglobose, elliptical, obovate or pyriform, black, shining, one to three septate, with one or two longitudinal septa, .0006' to .001' long.

Damp paste-board. Albany. November.
It forms indefinite black spots or patches.

CLASTERISPORIUM CARICINUM *Schw.*

Old leaves of Carices. New Baltimore. *Howe*.

CLASTERISPORIUM PEDUNCULATUM *Peck.* (Plate 1, figs. 16-18.)

Flocci erect, opaque, septate; spores terminal, nearly straight, multiseptate, colored, mostly subfusiform or lanceolate, about .003 long, the terminal cell hyaline.

Cut surface of wood. Savannah. October.

The spores easily break from the flocci on which they are supported as if on a peduncle half their own length. Their greatest thickness is usually near the base, the lower part tapering rapidly, the upper, gradually to their respective extremities. Some spores are oblong, others linear. They are seldom strongly curved and this character is not always present even in *C. caricinum*.

STREPTOTHRIX ABIETINA *Peck.* (Plate 1, figs. 13-15.)

Tufts subglobose, scattered or crowded, blackish-brown; flocci branched, pale, echinulate; spores globose, minutely rough, .00025' to .0003' in diameter.

Bark of prostrate spruce trunks. Sandlake. September.

The larger spores and echinulate threads separate this from *S. atra* B. & C.

CLADOSPORIUM EPIPHYLLUM *Nees*.

Fallen leaves of *Platanus occidentalis*. Castleton. June.

OIDIUM SIMILE *Berk.*

Decaying wood. Poughkeepsie. *Gerard*.

OIDIUM MONILIOIDES *Lk.*

Living grass leaves. West Albany. June.

ZYGODESMUS FUSCUS *Cd.*

Decaying wood and leaves. Greenbush. July.

ZYGODESMUS OLIVACEUS *B. & C.*

Decaying wood. Sandlake. September.

This scarcely differs from the preceding species except in its olivaceous color.

ASCOPHORA MUCEDO *Tode.*

Stale bread. Albany.

ONYGENA EQUINA *Pers.*

Old hoofs. Buffalo. *Clinton*.

SPHÆROTHECA CASTAGNEI *Lev.*

Both sides of various leaves. Common.

SPHÆROTHECA PRUINOSA *C. & P.*

Hypogenous; mycelium thin, effuse, persistent; conceptacles minute, black; appendages few, long, colorless; sporangium ovate, eight spored.

Leaves of *Rhus glabra*. Greenbush. August.

The long colorless appendages readily distinguish this species from the preceding. The whole lower surface of the leaf appears whitened as if pruinose.

PODOSPHÆRA BIUNCINATA *C. & P.*

Mycelium thin; conceptacles minute, black; appendages six to ten, very long, colorless, biuncinate, the tips of the divisions sometimes again divided; sporangium globose, containing eight spores.

Upper surface of leaves of the witch hazel, *Hamamelis Virginiana*. Poughkeepsie. *Gerard*. New Baltimore. *Howe*. Sandlake. September.

This is a very distinct species. The branches at the tips of the appendages are slightly curved and diverge nearly at right angles to the appendage. When mature the plants often become collected in entangled masses, giving the leaf the appearance of being coated with dusty cobwebs.

MICROSPHÆRA PULCHRA C. & P.

Amphigenous; mycelium thin, persistent; conceptacles numerous, globose, black; appendages eight to twelve, about equal in length to the diameter of the conceptacles, colorless; sporangia four or five, containing four to six spores.

Leaves of *Cornus alternifolia*. Greenbush. September.

The mycelium is more conspicuous on the upper than on the lower surface of the leaves. The conceptacles are often closely placed over large portions of the leaf.

MICROSPHÆRA DIFFUSA C. & P.

Mycelium thin, evanescent; conceptacles minute, globose, black; appendages numerous, eighteen to twenty-five, in length once or twice the diameter of the conceptacle, colorless, somewhat irregularly divided and slightly nodulose at the tips; sporangia ovate, four to six, containing four to six spores.

Leaves of *Desmodium Canadense*. Albany. September and October.

This plant generally occupies the upper surface of the leaf but sometimes spreads to the lower.

MICROSPHÆRA EXTENSA C. & P.

Mycelium thin, effuse, persistent; conceptacles globose, black; appendages eight to twelve, in length three or four times the diameter of the conceptacle, colorless; sporangia four, subglobose or ovate, containing four to six spores.

Upper surface of oak leaves, *Quercus rubra*. Greenbush. September and October.

It frequently occupies the whole upper surface of the leaf but I have never seen it extend to the lower surface. It may readily be distinguished by its habit and fewer differently shaped sporangia from *M. Vaccinii* which also has very long appendages.

MICROSPHÆRA HOLOSERICEA Lev.

Leaves of *Astragalus*. Buffalò. Clinton. October.

MICROSPHÆRA HEDWIGHI Lev.

Leaves of *Viburnum Lentago*. Albia, Rensselaer county. September and October.

ERYSIPHE MARTII *Lk.*

Leaves and stems of pea vines. New Baltimore. *Zabriskie*.
Sandlake, October.

UNCINULA MACROSPORA *Pk.* (Trans. Alb. Inst., vol. vii, p. 215.)

Mycelium effused, persistent; conceptacles subglobose; appendages numerous, thirty or more, about equal in length to the diameter of the conceptacle; sporangia eight to twelve; spores two, very large, elliptical, .0012–.0015 inch long.

Leaves of elm trees. Buffalo. *Clinton*.

This was at first thought to be *U. Bivonae* Lev., but that species is described as having an evanescent mycelium, only four sporangia and ten to twenty appendages.

UNCINULA CIRCINATA *C. & P.*

Mycelium dense, effuse, persistent; conceptacles large, depressed or flattened, black; appendages very numerous, slender, about equal in length to the diameter of the conceptacle, simple, colorless; sporangia oblong or narrowly ovate, eight to sixteen, containing eight spores.

Under surface of maple leaves, *Acér spicatum* and *A. rubrum*. Watkins and Greenbush. September and October.

This species is related to *U. bicornis* from which it is distinguished by its hypogenous habit, more numerous sporangia and always simple appendages. It usually occupies the whole under surface of the leaf.

UNCINULA AMPELOPSIDIS *Pk.* (Trans. Alb. Inst., vol. vii, p. 216.)

Amphigenous; mycelium web-like, thin, evanescent; conceptacles minute, globose, black; appendages ten to twenty, in length once or twice the diameter of the conceptacle, simple, obscurely septate toward the base, colored, a little paler at the tips; sporangia four to six, subglobose or ovate, containing four to six spores.

Leaves of the woodbine, *Ampelopsis quinquefolia*. Buffalo. *Clinton*. Greenbush. August to October.

The colored appendages are characteristic of this species.

UNCINULA CLINTONII *Pk.* (Trans. Alb. Inst., vol. vii, p. 216.)

Amphigenous; mycelium thin, persistent; conceptacles small, globose, black; appendages fifteen to twenty-five, about equal in length to the diameter of the conceptacle, colorless, slightly thickened toward the uncinately-coiled tips; sporangia four to six, containing four to six spores.

Leaves of *Tilia Americana*. Buffalo. Clinton. Watkins. September and October.

The thickened tips of the appendages are characteristic of this species. The mycelium is more conspicuous on the upper than on the lower surface of the leaf. I take pleasure in dedicating this species to its discoverer, *Hon. G. W. Clinton*.

GEOGLOSSUM GLUTINOSUM Pers.

Borders of swamps. Sandlake. September.

The viscid stem is the most available character for separating this species from *G. hirsutum*. In both species the spores are fifteen-septate.

GEOGLOSSUM SIMILE Peck.

Plant 1'-2' high, black; club obtuse, generally compressed, sometimes with a broad shallow groove on one side, hairy, tapering into the stem; asci broad; spores fasciculate, elongate, slightly curved, seven-septate, colored, .003'-.004' long; paraphyses slightly thickened at the tips, septate, sometimes branched.

Damp mossy ground in swamps. Fort Edward. Howe. Sandlake. September.

Externally this species can scarcely be distinguished from *G. hirsutum*, but its shorter seven-septate spores and paler paraphyses with tips less recurved and more distinctly septate are distinguishing characters too marked to be overlooked.

GEOGLOSSUM MICROSPORUM C. & P.

Plant 1' high, black; club obtuse, smooth, viscid when moist, distinct from the minutely squamulose stem; spores crowded or biseriate, cylindrical, obtuse, slightly curved, simple, hyaline, .0007'-.0013' long.

Burnt ground under *Pteris aquilina*. Greig. September. This species is allied to *G. viride*. When moist the spores ooze out on the viscid surface.

VIBRISSEA LUTEA Peck. (Plate 1, figs. 19-23.)

Plant 6"-12" high, yellow; receptacle subglobose, smooth, the margin slightly lobed, inflexed, free; stem nearly equal, solid, a little more highly colored than the receptacle, longitudinally wrinkled when dry; asci clavate or cylindrical; spores long, filiform.

Prostrate, mossy trunks of trees and among fallen leaves in woods. North Elba. August.

The free margin of the receptacle is an anomalous character in this species. It is larger than the next, the receptacle being 2"-3" in diameter.

VIBRISSEA TRUNCORUM *Fr.*

Sticks and twigs lying in water. Sandlake. June.

NODULARIA ACERICOLA *n. sp.*

Cæsпитose, small, fleshy, irregular, pale yellow, open from the first; disk plane or convex, slightly pruinose, the margin obsolete; asci clavate; spores crowded or biseriate, oblong, sometimes curved, .001'-.0013' long, .00033' broad; paraphyses thickened at the tips, subflexuous, slightly nodulose.

Dead branches of *Acer spicatum*. North Elba. August.

The tufts usually contain from three to eight plants and are about one line broad.

PATELLARIA INDIGOTICA *C. & P.*

Cups sessile, scattered or crowded, nearly plane, margined, black, the disk tinged with blue; asci subcylindrical; spores crowded or biseriate, subclavate, seven to nine-septate, with a nucleus in each cell, subhyaline, .0015'-.002' long.

Decaying wood. Savannah. October.

The bluish tint of the hymenium is distinctly seen when a portion of the disk is moistened and crushed on the slide of the microscope.

HELOTIUM EPIPHYLLUM *Fr.*

Decaying leaves in swamps. Sandlake. August.

PEZIZA VESICULOSA *Bull.*

Dung heaps. West Albany. June.

PEZIZA PELLITA *C. & P.*

Sessile, subglobose, then expanded and radiately splitting into four or five irregular lobes, 6"-10" in diameter; externally brown, clothed with septate flexuous hairs; disk yellowish, sometimes tinged with red; asci cylindrical; spores elliptical, .0007'-.001' long; paraphyses slightly clavate at the tips.

Thin soil covering rocks. Lower Ausable Lake. Adirondack Mts. July.

PEZIZA BADIA *Pers.*

Damp ground and shaded banks by roadsides. Sandlake and North Elba. August and September.

PEZIZA STERCOREA *Pers.*

Excrement of cattle. North Elba. August.

PEZIZA RESINÆ *Fr.*

Gum spots on spruce trees, especially on the "blaze" marks of old trails and boundary lines in woods. Adirondack Mts. July.

PEZIZA KALMIÆ *n. sp.*

Cups minute, sessile, nearly plane, margined, externally furfuraceous and dull gray, the margin at first incurved; disk pinkish-brown; spores elliptical, mostly nucleate, .0004' long, .0002' broad.

Dead stems and branches of *Kalmia angustifolia*, extending also on *Dothidea Kalmiæ*. Sandlake. September.

PEZIZA LEUCOLOMA *Reb.*

Ground among mosses. Genesee, Allegany county. Sept.

PEZIZA NIVEA *Fr.*

Dead stems of herbs. Portville. September.

PEZIZA CORONATA *Bull.*

Dead stems of herbs. Portville. September.

This is a beautiful species, about one line high and readily known by the peculiarly ciliate-pectinate margin. The stem is straight or flexuous.

PEZIZA SOLENIA *Peck.*

Cups minute, nearly cylindrical, hairy, brown, opening by a contracted white-margined mouth; spores oblong, crowded or biseriate, uniseptate, usually with four nuclei, subhyaline, .0005' long; paraphyses filiform.

Dead stems of *Eupatorium ageratoides* in damp shaded places. Watkins Glen. September.

The cups are a little longer than broad and appear like some minute Solenia.

STICTIS RADIATA *Fr.*

Petioles of ash leaves. Portville. September.

The white margin is sometimes lobed in such a way as to resemble the peridia of *Æcidium*.

CENANGIUM CEPHALANTHI *Schw.*

Dead branches of *Cephalanthus occidentalis*. Greenbush. July.

TYMPANIS CONSPERSA *Fr.*

Dead trunks of *Prunus Pennsylvanica*. Mud Lake, Essex county. July.

The specimens are sterile and to this extent doubtful.

RHYTISMA ANDROMEDÆ *Fr.*

Leaves of *Andromeda polifolia*. Sandlake. September.

RHYTISMA ILICIS-CANADENSIS *Schw.*

Leaves of *Nemopanthes Canadensis*. Buffalo. Clinton.

RHYTISMA LINEARE *Peck.* (Plate 1, figs. 24-26.)

Plant linear, here and there interrupted or constricted, black; asci broad, clavate, eight-spored; spores very long, obtuse, strongly narrowed in the middle, involved in mucus, .002-.003' long.

Leaves of pine trees, *Pinus Strobus*. Guilderland, Greenbush and Sandlake. June.

This species is well marked by the singular form of the spores, which appear to consist of two oblong portions connected by a narrow neck. It forms a thick black line on the lower surface of the leaf, often extending the entire length. The leaves that are attacked soon die and fall to the ground. The specimens that I have seen are seldom fertile, only those from the first named locality containing spores.

HYSTERIUM ILICINUM *De Not.*

Fallen oak leaves. Watkins. September.

HYSTERIUM SCIRPINUM *Fr.*

Base of dead stems of *Scirpus validus*. Montezuma marshes. September.

HYSTERIUM COMMUNE *Fr.*

Dead stems of herbs. Very common. Fertile specimens were found in September.

HYSTERIUM INSIDENS *Schw.*

Chestnut rails and posts. Poughkeepsie. Gerard. Greenbush. September to November.

HYSTERIUM TORTILE *Schw.*

Bark of *Janiperus Virginiana*. Poughkeepsie. Gerard.

HYPOCREA GELATINOSA *Fr.*

Dead alder branches. Center.

TORRUBIA OPHIOGLOSSOIDES *Tul.*

Poughkeepsie. Gerard.

XYLARIA FILIFORMIS *A. & S.*

Dead stems of herbs in a wooded swamp. Portville. September.

XYLARIA ACUTA *n. sp.*

Plant gregarious or subcaespitose, 1'-1.5' high; club cylindrical or subfusiform, generally with a sterile acute apex, blackish-brown, central substance white with a radiating structure; stem involved in a dense purplish mucedinous tomentum which causes it to appear bulbous; perithecia globose, black; spores uniseriate, elliptical, sometimes slightly curved, colored, .0006'-.0007' long.

Mossy decaying logs in woods. Greig. September.

This species is related to *X. digitata* from which it differs in its less caespitose habit, and in the character of the stem and central substance. According to Fries, *X. digitata* has a "simple central pith," in this species the central pith is radiating as in *X. polymorpha*.

HYPOXYLON VERNICOSUM Schw.

Sticks and dead branches. Poughkeepsie. Gerard. Adirondack Mts. July.

HYPOXYLON ATROPURPUREUM Fr.

Decaying wood. Buffalo. Clinton.

DIATRYPE ATROPUNCTATA Schw.

Dead branches of oak trees. Greenbush. August.

DIATRYPE DISCRETA Schw.

Dead branches of apple trees. Poughkeepsie. Gerard. Bethlehem and Guilderland. May.

DIATRYPE CERCIDICOLA B. & C.

Stroma black, plane, suborbicular, 3"-4" in diameter, thin, seated on the inner bark, surrounded by the ruptured epidermis, dotted by the minute depressed or umbilicate at length perforate ostiola; perithecia crowded, elliptical or ovate, spores unequally ovate, colored, .0004' long.

Bark of unknown wood. Buffalo. Clinton. March.

The inner surface of the bark is stained black. I have seen no description of this species, but the specimens agree with those received from Dr. Curtis and labeled by him *Diatrype Cercidicola* B. & C.

DIATRYPE BETULINA *n. sp.* (Plate 1, figs. 27-31.)

Stroma transversely erumpent, elliptical, prominent, penetrating to the wood on which it forms a white spot surrounded by a black line, green within, black on the surface, which is nearly plane and

dotted by the numerous slightly prominent stellate ostiola; perithecia crowded in a single layer, elliptical, black; asci long, containing many spores; spores sausage-shaped, yellowish in the mass, .0002' long.

Dead branches of birch trees, *Betula lutea*, in woods. Greig. September.

This species belongs to the subgenus *Diatrypella* and may be readily known by the green stroma. Externally it resembles *Melanconis elliptica*.

EUTYPA LATA *Pers.*

Decaying wood. Greenbush and Castleton. May and June.

DOTHIDEA TRIFOLII *Fr.*

Leaves of clover. Buffalo. *Clinton*. Sterile.

DOTHIDEA KALMIE *n. sp.*

Thin, effuse, investing the branches, black, shining, brownish within; cells small, whitish within; asci linear; spores uniseriate, uniseptate, constricted, subhyaline, .0004'-.0005' long, half as broad, the cells generally nucleate and unequal.

Branches of *Kalmia angustifolia*. Sandlake. September.

This plant forms a black crust which entirely surrounds the smaller branches, and which, in fertile specimens, is seen by careful inspection to be minutely dotted with black points or ostiola. Within it has the appearance of half charred wood. It kills the branches attacked. A form of this plant was found in June, destitute of asci but having oblong, simple, spore-like bodies, .0008' long.

MELANCONIS ELLIPTICA *n. sp.*

Stroma transversely erumpent, elliptical, prominent, seated on and discoloring the inner bark, black on the surface, having an olivaceous tinge within; perithecia small, immersed in the basal part of the stroma, subglobose, black; ostiola few, papillate, sometimes surrounded by an impressed line; spores crowded or biseriate above, colored, elliptical-oblong, five-septate, .0011'-.0013' long, .0005' broad.

Bark of dead birches, *Betula populifolia*. Center. November and April.

This species is apparently related to *M. lanceiformis*, but the spores are smaller. The aperture in the epidermis is acute at each end.

VALSA AMBIENS *Fr.*

Dead branches of apple trees, also of poplars. Guilderland and Indian Lake. October and May.

VALSA THELEBOLA Fr.

Dead branches of alders. West Albany. June.

VALSA PLATANI Schw.

Fallen branches of *Platanus occidentalis*. Bethlehem. May.

VALSA VITIS Schw.

Dead branches of grape-vines. Greenbush. November.

VALSA COLLICULUS Wormsk.

Dead branches of pine trees. Center. April.

VALSA QUATERNATA Fr.

Dead branches of beech trees. Greenbush. August.

VALSA TRUNCATA C. & P.

Spermogonia — Cytisporoid, disk erumpent, truncate, pulverulent in the center, sometimes having a bilabiate appearance; spermatia amber in the mass, minute, linear.

Ascophore — Erumpent, prominent, truncate; perithecia six to eight, nestling in the inner bark, globose, black, the necks united in an elliptical or orbicular black disk which is pierced by the ostiola and generally pulverulent on the margin; asci small, lanceolate; spores minute, sausage-shaped, hyaline, .00035'-.0004' long.

Dead branches of alders. Johnsburgh, Warren county. October.

The truncate brownish-powdered disk is a characteristic feature in this species. The dust of the disk seems to disappear after a time.

VALSA ALNI n. sp.

Perithecia nestling in the inner bark, black; ostiola short, black, obtuse, dotting the small blackish mostly transversely erumpent disk; spores crowded or biseriate, sausage-shaped, hyaline, .0004'-.0005' long.

Trunks and branches of dead alders. Center. April.

This plant is plentiful where it occurs, rendering the branch rough for several feet in extent.

VALSA PROFUSA Fr.

Dead branches of locust trees, *Robinia pseudacacia*. Albany. June.

This, according to specimens received from Dr. Curtis, is *Massaria macrospora* B. & C. In both this and the next species the bark is stained black by the spores oozing out as in *Massaria*.

VALSA HAPALOCYSTIS B. & Br.

Dead branches of *Platanus occidentalis*. Bethlehem. April.

MASSARIA ARGUS Tul.

Dead branches of birch trees. Portville. September.

SPHÆRIA HIRSUTA Fr.

Decaying wood. Sandlake. October.

SPHÆRIA BOMBARDA Batsch.

Decaying wood. Portville. September.

SPHÆRIA MORIFORMIS Tode.

Decaying wood. Catskill Mts. July.

SPHÆRIA PULVERACEA Ehrh.

Bark of oak trees. Greenbush. August.

SPHÆRIA SALICELLA Fr.

Dead branches of willows. Greenbush. May.

SPHÆRIA RAMULICOLA n. sp.

Perithecia small, scattered, seated on the inner bark, erumpent by an angular or subcircular aperture, subglobose, subfibrous, black, white within; ostiola minute, indistinct; asci cylindrical; spores elliptical, uniseriate, biseptate, slightly constricted, colored, .0008'-.0011' long, .00055' broad.

Dead twigs of elm trees. Greenbush. May.

The perithecia are abundant on all sides of the smaller branches, rendering them rough to the touch.

SPHÆRIA VACCINICOLA Schw.

Dead twigs of *Vaccinium corymbosum*. Sandlake.

SPHÆRIA PEZIZULA B. & C.

Dead branches of *Cornus alternifolia*. Sandlake. April.

SPHÆRIA LILACINA Schw.

Dead stems of *Phytolacca decandra*. Trenton Falls. September.

SPHÆRIA RUBELLA Pers.

Dead stems of herbs. Castleton. June.

SPHÆRIA ECCENTRICA *C. & P.*

Perithecia scattered, depressed, black, at first covered by the epidermis which is pierced by the eccentric or lateral curved acute rostellate ostiola, at length superficial; asci subclavate; spores crowded or biseriate, subfusiform, four-nucleate, hyaline, .00035' long.

Dead stems of *Polygonum*. Albany and Portville. June and September.

SPHÆRIA PETIOLORUM *Schw.*

Fallen petioles of ash trees. Guilderland. May.

SPHÆRIA KALMIARUM *Schw.*

Fallen leaves of *Kalmia latifolia*. Watkins. September.

SPHÆRIA MELANOSTYLA *Fr.*

Fallen leaves of *Tilia Americana*. Helderberg Mts. May.

SPHÆRIA FRAXICOLA *Schw.*

Fallen leaves of ash trees. Greenbush. November.

The specific name is apparently badly formed. Probably it was intended for *Fraxinicola*, but that name is now applied to another species.

SPHÆRIA LEUCOPLACA *B. & R.*

Excrement of cattle. Buffalo. Clinton. Center. November.

SPHÆRELLA SPLENIATA *C. & P.*

Perithecia minute, closely grouped in rather large, distant, sub-orbicular or angular clusters, globose, black, nestling in the tomentum of the leaf; asci linear; spores oblong, hyaline, uniseptate, .0005'-.0006' long.

Under surface of fallen leaves of oak trees, *Quercus bicolor* Willd. Greenbush. June.

VENTURIA ORBICULA *C. & P.*

Perithecia minute, globose, superficial, black, collected in orbicular clusters, hispid with persistent black bristles; asci short, subclavate; spores crowded, uniseptate, with the cells generally unequal, colored, .0004' long, .00018' broad.

Under surface of fallen leaves of oak trees, *Quercus montana* Willd. Sandlake, Albany and Guilderland. May and June.

The spots are about one-fourth of an inch in diameter and the upper surface of the leaf is mottled by them.

VENTURIA PULCHELLA *C. & P.*

Perithecia small, grouped in irregular or angular clusters, black, hispid with shining black bristles; asci cylindrical; spores uniseriate, uniseptate, with the cells generally unequal, slightly colored, .0004' long.

Under surface of leaves of *Cassandra calyculata*. Center. November to June.

Fertile specimens were obtained in April. The affected leaves soon fall to the ground.

VENTURIA COMPACTA *n. sp.*

Perithecia small, usually grouped in orbicular compact clusters, black, rough with numerous short black bristles; asci linear; spores uniseriate or crowded, uniseptate, with the cells generally unequal, greenish or olivaceous, .0005'-.0006' long.

Under surface of leaves of the cranberry, *Vaccinium macrocarpum*. Sandlake. June to September.

Fertile specimens were obtained in September.

NEW STATIONS OF RARE PLANTS, REMARKABLE VARIETIES AND OBSERVATIONS.

CORNUS CANADENSIS *L.*

A form of this plant was found at Greig, in which the peduncle was divided near the summit and supported two or three clusters of flowers. The involucre were rose-colored.

LAPPA OFFICINALIS *v. TOMENTOSA Gr.*

New Baltimore. *Howe.*

VACCINIUM CÆSPITOSUM *Michx.*

This plant and *Carex irrigua* Smith, must be added to the flowering plants found on the open summit of Mt. Marcy.

MYRICA CERIFERA *L.*

Banks of the Hudson, half a mile north of Cold Spring.

ACNIDA CANNABINA *L.*

This sea-coast plant has been found at New Baltimore. *Howe.*

SCIRPUS TORREYI *Olney.*

Shores of Schroon Lake.

The stigmas in any particular flower develop before the anthers of that flower and are withered by the time these are mature, thereby insuring cross fertilization.

CAREX VITILIS *Fr.*

This is the only *Carex* found on the open summit of Dix's Peak. No grass grows there. This is remarkable, because on all the other high open summits of the Adirondacks that I have visited several species of grasses and Carices occur.

EQUISETUM PALUSTRE *v. RAMOSISSIMUM.*

Strawberry Island. *Clinton.*

The specimen is much more branched than usual and the branches are themselves furnished with branchlets.

PHEGopteris POLYPODIOIDES *v. MULTIFIDUM Lowe.*

This singular variety occurs sparingly in the Adirondack Mts.

ASPIDIUM ACULEATUM *Swartz.*

This very rare fern was reported from the Adirondack Mts. many years ago by Dr. *W. F. Macrae*, but, until the present season, had not since been found there. In a recent botanical

tour I detected it in two localities; one in the ravine below Rainbow Falls, near the outlet of Lower Ausable Lake, the other at the base of Bartlett Mt. Probably it occurs in other places east of Mt. Marcy and in the ravines of the Gothics.

WOODSIA GLABELLA *R. Br.*

The form at Lake Avalanche is larger than that at Little Falls and approaches more closely in appearance to *W. Ilvensis*.

BOTRYCHIUM SIMPLEX *Hitch.*

Otisco. *S. N. Cowles.*

ORTHOTRICHUM CANADENSE *Br. & Sch.*

Most of the specimens formerly referred to this species are now considered to be *O. Ohioense* S. & L., ined.

ORTHOTRICHUM LEIOCARPUM *Br. & Sch.*

The specimens formerly referred to this species are a form of *O. speciosum* Nees, with the dry capsule entirely smooth. It may be distinguished from *O. leiocarpum* by its having only eight cilia.

ORTHOTRICHUM PSILOCARPUM *James.*

This is synonymous with *O. pusillum* Mitten, by which it is antedated.

HYPNUM MICROCARPUM V. ANISOCARPUM *Bry. Eur.*

Helderberg Mts. *Austin.* Remarkable for the very long rostrum of the operculum.

PLAGIOTHECIUM PILIFERUM V. BREVIPILUM *Bry. Eur.*

The sterile form somewhat doubtfully thus referred in a former report is found to be *Plagiothecium Mullerianum* Schp. Mr. Austin sends fertile specimens from Sam's Point, Ulster county.

AGARICUS AMERICANUS *Pk.*

This plant sometimes grows in large tufts of twenty or thirty individuals. It is at first nearly white. The annulus is slightly attached to the stem and is sometimes fugacious. The spores are broadly ovate or subglobose, generally nucleate, .00035' long.

AGARICUS OCHROPURPUREUS *Berk.*

This species is found from June to September. It occurred in Greenbush the past season in great abundance. It often manifests a tendency to grow in circles.

AGARICUS CAMPESTRIS V. VILLATICUS *Brond.*

This large and well marked variety was found as early as June in rich soil near Albany.

LACTARIUS UVIDUS *Fr.*

This plant usually grows in swamps, but fine specimens were found growing on dry soil under pine trees at Center.

RUSSULA MARIE *Pk.*

Near Albany. The spores are yellow.

POLYPORUS ELEGANS *Fr.*

Specimens were found in the Adirondack woods with the stem entirely black, and in some instances with a black spot on the pileus opposite the insertion of the stem.

UREDOPYROLÆ *Grev.*

There are three distinct varieties of this species. The first, which is the most common, is without spot, the sori are numerous, equal, rotund and occupy the whole under surface of leaves of *Pyrola rotundifolia*; the second has a brownish spot and the small rotund sori are distantly scattered over the under surface of leaves of *P. secunda*; the third has the sori large, irregular and confluent, long covered by the epidermis and occupying the lower surface of leaves of *P. secunda*. It sometimes succeeds the second variety on the same leaf.

ÆCIDIUM HOUSTONIATUM *Schw.*

Slope of Mt. Marcy on *Houstonia, cærulea*.

ÆCIDIUM TENUE *Schw.*

Sandlake in September. It usually occurs in July. In the present instance the plants on which the *Æcidium* was found had been eaten at the top by cattle. New branches had grown out beneath the injured part and on the leaves of these the parasite occurred. The inference is, that the age of the leaf has some influence in determining the time of the appearance of the parasite.

PILEOLARIA BREVIPES *B. & R.*

The spores are vertically flattened when dry, but under the influence of moisture they soon become globose. The specific name seems quite inappropriate unless it be a comparative one, for the peduncles are several times longer than the spores.

TORULA POPULINA *Pk.*

This is not a good *Torula* and must be referred to the genus *Myxormia*.

(5)

SYNOPSIS OF NEW YORK PUCCINIE.

PUCCINIA Pers.

Uredo spores subglobose, brand spores uniseptate, supported on a distinct peduncle.—Hand-book of British Fungi.

The minute plants included in this genus are known by the common names *brand*, *mildew* and, in one condition, *rust*. They grow upon the leaves and stems of living plants, and consist of obscure filaments imbedded in the tissue of the affected part and of dense tufts or clusters of spores which spring from them. In many species a discolored spot, which is also sometimes distorted or swollen in appearance, marks the position of these spore clusters. They are at first covered by the epidermis of the leaf, but as they advance toward maturity they push this up in the form of little swellings or pustules. Soon the pressure becomes so great that the epidermis bursts, revealing the little, compact, cushion-like cluster of upright spores, nestling within its ruptured walls. These spore clusters or sori, as they are sometimes called, vary in size in different species and even in the same species, but they seldom exceed one line in diameter. In some species found on grasses, they frequently become confluent or greatly elongated in one direction and form long parallel lines between the veinlets of the leaf. In one species they are scattered about irregularly, in another, crowded together in orbicular groups or patches, and in a third they are both scattered and clustered. Sometimes they occur upon both surfaces of the leaves they inhabit, but most often on the lower surface only, and very rarely on the upper surface alone.

The color of the spores, as seen in a mass, is some shade of brown or black, and at a little distance the affected stems and leaves appear to be blackened in spots as if scorched by fire, whence probably the application of the term "*brand*" to these plants.

A transverse septum or partition at or near the middle of each spore divides it into two parts or cells. In some species the spore is much constricted at this dividing line, causing it to appear as if a band were closely drawn around it. In each cell a small globule or nucleus is sometimes seen, but this is not a constant mark. The young spores are paler in color and often more narrow and pointed than those that are mature. The prevailing forms are elliptical, oblong and clavate. Generally, in those species with elliptical spores, the peduncle is short and hyaline, but in other cases it is various, being short or long, hyaline or colored, according to the species.

Species of *Puccinia* may be found almost any time from May to October, but the greater number of species appear in late summer and in autumn. Sometimes they persist through the winter, and old stems and leaves may be found in early spring, infested by the *Puccinia* of the preceding year.

That these parasites are injurious to the plants they attack is manifest, since they diminish their vigor and thus impair both the quantity and quality of the seed. It is this fact that makes "rust" and "mildew;" words of such terrible import to the farmer. He dreads the advent into his grain fields of the pest they indicate, and the fearful injury it is capable of inflicting upon his pecuniary interests.

The condition of these plants known as "rust" or *Trichobasis* generally precedes the true *Puccinia* development. In this state the spores are of a reddish-yellow or rust color, subglobose in form and simple. They have no septum, and when fully mature no peduncle. But sometimes the two kinds of spores may be found intermingled in the same sorus.

In the following synopsis an attempt has been made to group the species according to their affinities and to give the characters so fully that the student may satisfactorily identify the species. The color of the spot is given as it appears on the upper surface of the leaf, or on that surface which is opposite the spore clusters. The measurements are of moistened spores and are given in decimals of an inch. They may in some cases be a little too large for dry spores. Figures of the spores have been drawn by the aid of the camera lucida, they being uniformly magnified four hundred diameters. Although the spores in the same species and even in the same cluster vary within certain limits, they doubtless furnish the most reliable characters for the discrimination of the species. In selecting spores for illustration, those were chosen which seemed to represent the prevailing form or forms in each species.

§ 1. *Spores elliptical, obtuse, not at all or but slightly constricted; peduncle very short, hyaline.*

1. *P. PULCHELLA* Peck. *Currant Brand.*

Spots yellow or greenish-yellow, orbicular, rarely confluent; sori small, circinating, sometimes confluent, blackish-brown; spores .001'-.0013' long, .0006' broad.

Upper surface of leaves of *Ribes prostratum*. North Elba, Essex county. July.

This species is as rare as it is beautiful, having been found in no other locality than the one reported. It is remarkable, from the fact that the sori occur only on the upper surface of the leaf. These are usually arranged in two circles, one within the other, and both surrounding a central sorus or cluster of confluent sori. The spots are about one-eighth of an inch in diameter and nearly equal.

2. *P. MESOMAJALIS*, B. & C. *Clintonia Brand.*

Spots orbicular or elliptical, dull yellowish or brown, sometimes with a darker margin; sori minute, surrounded by the ruptured remains of the epidermis, clustered, frequently crowded, cinnamon-

brown; spores somewhat irregular, .001'-.0013' long, .0006'-.0007' broad.

Leaves of *Clintonia borealis*. Adirondack Mts. July to September.

The sori normally occur on the upper surface of the leaf, but there are usually a few on the lower surface. I have seen no description of this species, and depend upon the authentication of my specimens by Rev. M. A. Curtis for the correctness of their reference.

3. *P. VIOLARUM* Lk. *Violet Brand.*

Hypogenous; spots yellowish; sori small or minute, clustered or scattered, at first covered by the epidermis, then surrounded by its ruptured remains, brown; spores broadly elliptical, .001'-.0013' long, .0008'-.0009' broad.

Leaves of violets. Common. July to September.

A form with the sori minute and scattered over the whole under surface of the leaves occurs on *Viola pubescens*. The Uredo form of this species is *Trichobasis Violarum* Lev.

4. *P. MYRRHIS* Schw.

Amphigenous; spots pallid or yellowish, sometimes none; sori small, scattered or loosely clustered, blackish-brown; spores broadly elliptical, .001'-.0013' long, .0008' broad.

Leaves of sweet cicely, *Osmorrhiza brevistylis* and *O. longistylis*.

Our specimens do not agree strictly with the perplexingly brief description of Schweinitz, but they can scarcely be more than a mere variety, differing in the color of the spores and sometimes in the presence of spots on the leaves. The species is very close to the next, differing chiefly in the smaller size of the spores, a difference which extends also to the Uredo form.

5. *P. UMBELLIFERARUM* DC.

Amphigenous; spots none; sori small, scattered, dark-brown; spores somewhat irregular, slightly constricted, sometimes narrowed toward the base, .0013'-.0016' long, .0008' broad.

Leaves of *Archangelica atropurpurea*. North Greenbush. July to September.

The dull color of the sori causes the leaf to appear as if mottled with numerous small areas of dead tissue. The spores in our specimens agree exactly with those of European specimens. *Trichobasis Umbellatarum* Lev. is the Uredo form.

6. *P. VARIABILIS* Grev. *Variable Brand.*

Amphigenous; spots none; sori small, scattered, subrotund, surrounded by the ruptured epidermis, blackish-brown; spores

subelliptical, variable, .001'-.0013' long, .0008'-.0009' broad, the cells sometimes subdivided.

Leaves of the dandelion, *Taraxacum Dens-leonis*. New Baltimore. September to November. *Rev. J. L. Zabriskie*.

The remarkable feature of this species is the variable form of the spores; yet in this character even, it approaches some forms of the next species very closely. It attacks especially the leaves of young or seedling plants. The peduncle is sometimes attached to the side of the spore. I have seen no American specimens with the spore cells subdivided.

7. *P. COMPOSITARUM* Schl. *Composite Brand.*

Amphigenous; spots pallid or none; sori small, subrotund, surrounded by the ruptured epidermis, brown; spores .0013'-.0016' long, .0008'-.001' broad.

Leaves and stems of Canada thistle, *Cirsium arvense*. Common. August to October.

Variety *Nabali* has the spores broadly elliptical or subglobose and generally a little smaller. It occurs on leaves of *Nabalus albus*. *Trichobasis Cichoracearum* Lev. is the Uredo form.

§ 2. *Spores aculeate.*

8. *P. ACULEATA* Schw. *Mandrake Brand.*

Hypogenous; spots large, angular, often confluent, yellow or brown; sori small, loosely clustered, surrounded by the ruptured epidermis, brown or blackish-brown; spores elliptical or oblong, obtuse, scarcely constricted, sometimes slightly tapering toward the base, rough with prominent spine-like teeth, .0016'-.0022' long, .0008'-.001' broad; peduncle very short or indistinct, often wanting.

Leaves of mandrake, *Podophyllum peltatum*. Common. June and July.

This is the *P. Podophylli* of Schweinitz Fungi of North Carolina. It sometimes occurs associated with *Æcidium Podophylli* Schw.

§ 3. *Spores irregular, subelliptical or ovate, generally with a small pustule or apiculus at the apex; peduncle short, easily separating.*

9. *P. TRIPUSTULATA* Pk. *Blackberry Brand.*

Hypogenous; spots small, distinct, angular, yellow; sori very minute, few, loosely clustered, brown; spores triangular, sometimes ovate, not at all or but slightly constricted, mostly tripustulate, .0013'-.0016' long, .0008'-.0009' broad.

Leaves of the blackberry, *Rubus villosus*. Greig. September. Not common.

The pustules of the spores are hyaline and more distinct when the spores are moist or fresh. When the peduncle is absent a pustule appears to occupy its former place of attachment, so that usually a pustule is seen on each of the three prominent points of the spore. The apex sometimes has two pustules. The spots are limited by the veinlets of the leaves.

10. *P. PECKIANA* Howe. *Raspberry Brand*.

Hypogeous; spots mostly indefinite or confluent, yellow, sometimes none; sori very minute, scattered, brown; spores ovate, sometimes triangular, not constricted, often abruptly pointed at the base, .0013'-.0016' long, .0008'-.0009' broad.

Leaves of raspberries, *Rubus strigosus* and *R. occidentalis*. New Baltimore. Howe. Poughkeepsie. Gerard. North Greenbush. August to October.

This species is closely related to the preceding one, although by its different habit it is readily distinguished from it without microscopical examination. The spores often have a hyaline pustule at the apex and when fully mature are seldom found with the peduncle attached.

11. *P. NOLITANGERIS* Ck. *Balsam Brand*.

Hypogeous; spots brown or none, sometimes concave above, convex below; sori scattered or gregarious, unequal, prominent, reddish-brown; spores scarcely constricted, with a hyaline pustule at the apex, .001'-.0013' long, .0006' broad.

Leaves of touch-me-not, *Impatiens fulva*. Cherry Valley. October.

This species seems to be rare with us, having been found, so far as I know, only in the locality here given. Our specimens do not agree strictly with the description, the sori being seldom found on brown spots. I have not seen the *Uredo* form, but it is said to be *Uredo Impatiens* Rabh. A variety with spores a little larger was found by Dr. Howe at New Baltimore, growing on leaves of *Polygonum dumetorum*.

12. *P. CRYPTOTÆNIÆ* Peck. *Honewort Brand*.

Hypogeous; spots small, pallid or yellowish, sometimes tinged with purple, dotted by the sori, occasionally confluent; sori minute, clustered, at first covered by the epidermis, then surrounded by its pale ruptured remains which continue in the form of a small pustule with a contracted subcircular opening at the apex, reddish-brown; spores subelliptical, scarcely constricted, crowned with a hyaline pustule .0011'-.0016' long, .0006' broad.

Leaves and petioles of honewort, *Cryptotaenia Canadensis*. Common. June.

The spores closely resemble those of the preceding species, but in habit and in the character of the sori it is quite distinct. The leaves of the honewort are so thin that the sori form little dot-like elevations on the upper surface.

13. P. MARLÆ-WILSONI *Clinton Spring-Beauty Brand.*

Amphigenous; spots none; sori scattered or clustered, unequal, at first covered by the epidermis, then surrounded by its ruptured remains, reddish-brown; spores subelliptical, scarcely constricted, crowned with a pustule, .0013'-.0018' long, .0007'-.0008' broad.

Leaves and stems of the spring beauty, *Claytonia Caroliniana*. Buffalo. Clinton. Knowersville. May.

This species is closely related to the two preceding, but differs from both by its habit and larger spores. It is sometimes found associated with *Æcidium Claytoniatum* Schw., growing on the same plant and even on the same leaf.

14. P. TIARELLÆ B. & C. *Mitrewort Brand.*

Spots brown or reddish-brown, sometimes margined with yellow; sori scattered, prominent, reddish-brown; spores subelliptical or oblong, slightly constricted, subacuminate, .001'-.0013' long, .0005'-.0006' broad; peduncle one-fourth to one-half the length of the spore.

Leaves of mitrewort, *Tiarella cordifolia*. Sandlake and Watkins. August and September.

The sori are generally on the lower surface of the leaf, but sometimes they occur plentifully on the upper surface. I have seen no description of this species, but have specimens from Dr. Curtis which are labeled with this name and are identical with mine.

§ 4. *Spores echinulate, peduncle various.*

15. P. MENTHÆ Pers. *Mint Brand.*

Hypogenous; spots yellow, brown or purplish, sometimes none; sori unequal, subrotund, scattered or clustered, blackish-brown or black; spores subglobose or vertically flattened, not constricted, .001' long, .0008' broad; peduncle hyaline, equal to or exceeding the length of the spore.

Leaves of various mints, *Mentha Canadensis*, *Monarda fistulosa* and *Hedeoma pulegioides*. Buffalo. Clinton. New Baltimore. Howe. Greenbush and Watkins. September and October.

The American specimens, var. *Americana*, differ from the European in having the spores distinctly echinulate, and this

peculiarity extends also to the Uredo form, *Trichobasis Labiatarum* Lev. The two forms generally grow together upon the same plant and sometimes in the same sorus. The dry spores are flattened at each end and shorter than when moist.

16. P. ANEMONES Pers. *Anemone Brand.*

Hypogenous; spots none; sori nearly equal, subrotund, prominent, scattered, rarely closely placed and confluent, brown; spores strongly constricted, .0013'-.0016' long, .0007'-.0008' broad, the two parts nearly globose and equal; peduncle hyaline, short.

Leaves of the wind flower and meadow rue, *Anemone nemorosa* and *Thalictrum cornuti*. Common May to July.

17. P. PRUNORUM Lk. *Plum-tree Brand.*

Hypogenous; spots yellowish, often tinged with purple, sometimes none; sori subrotund, scattered, dark brown; spores slightly constricted, .0016'-.002' long, .0008'-.001' broad; peduncle hyaline, seldom more than half the length of the spore.

Leaves of wild cherry, *Prunus serotina*. Buffalo. Clinton. September.

This species seems to be rare. The specimens were found on the leaves of very young trees. The upper spore cell is generally broader than the lower.

§ 5. *Spores oblong or oblong-cluvate, peduncle various.*

18. P. GALIORUM Lk. *Bedstraw Brand.*

Hypogenous; spots none or indistinct; sori unequal, scattered, surrounded by the ruptured epidermis, brown or blackish-brown; spores oblong, compact, slightly constricted, .0013'-.0016' long, .0005' broad; peduncle generally equal to or exceeding half the length of the spore.

Leaves of *Galium triflorum*. Buffalo. Clinton. Portville. September. Rare.

I have found this species but once and then on a single plant only. The Uredo form is *Trichobasis Galii* Lev.

19. P. HELIANTHI Schw. *Sunflower Brand.*

Hypogenous; spots none; sori subrotund, prominent, scattered, sometimes closely placed, blackish-brown or black; spores oblong-elliptical, obtuse, slightly constricted, .0016'-.002' long, .0008'-.001' broad; peduncle hyaline, equal to or exceeding the length of the spore.

Leaves of various species of *Helianthus*. Common. September and October.

In his Synopsis of N. A. Fungi, Schweinitz changed the name of this species to *P. Helianthorum*.

20. *P. INVESTITA* Schw. *Cudweed* Brand.

Hypogenuous; spots yellow or none; sori small, subrotund, scattered or clustered, blackish-brown or black; spores oblong, slightly constricted, obtuse or somewhat pointed, .0016'-.002' long, .0008' broad; peduncle hyaline, one-half to wholly as long as the spore.

Leaves and stems of various species of *Gnaphalium*. Fort Edward. *Howe*. West Albany. Autumn. Not common.

The sori are partly concealed by the tomentum of the plants they inhabit. Those on the stems remain through the winter and may be found in spring. This species is sometimes associated with *Aecidium Gnaphaliatum*.

21. *P. MINUTULA* Pk. *Minute* Brand.

Hypogenuous; spots suborbicular, sometimes confluent, yellow, often with a purple or brown center; sori clustered, crowded, minute, blackish-brown or black; spores oblong, slightly constricted, mostly obtusely pointed, .0016'-.0022' long, .0006'-.0007' broad; peduncle colored, rarely as long as the spore.

Leaves of the tall goldenrod, *Solidago altissima*. Catskill mountains. July. Rare.

This species is very closely related to the European *P. Virgaureæ* and perhaps ought to be considered an American variety instead of a distinct species. It differs, however, in having the spots more highly colored and usually stained with brown or purple, in the dull, not shining, blackish color of the more crowded sori and in the usually nucleated, longer and more pointed spores. The sori sometimes arrange themselves along the veinlets of the leaves but do not show clearly the "stellate" character of *P. Virgaureæ*.

22. *P. XANTHII* Schw. *Cocklebur* Brand.

Hypogenuous; spots unequal, suborbicular, plane or concave above and convex below, sometimes confluent, yellowish, often with a purple or brown center; sori clustered, small, crowded, sometimes circinating, blackish-brown; spores oblong, slightly constricted, generally obtusely pointed, .0016'-.0022' long, .0006'-.0007' broad; peduncle colored, one-half to wholly as long as the spore.

Leaves of cocklebur, *Xanthium strumarium*. Common. September and October.

23. *P. ASTERIS* Schw. *Aster* Brand.

Hypogenous; spots suborbicular, unequal, sometimes confluent, generally concave above and convex below, yellow, often stained with red purple or brown; sori clustered, distinct, crowded or confluent, surrounded by the ruptured epidermis, blackish-brown or black; spores oblong-clavate, constricted, .0015'-.0019' long, .0006'-.0007' broad; peduncle slightly colored, one-half to wholly as long as the spore.

Leaves of asters, especially of *Aster macrophyllus*. Common. July to September.

This is a very variable species. Variety *purpurascens* C. & P. has the spots plane, mostly purple and occupied by a few distinct small sori, with the spores a little smaller. It inhabits *Aster acuminatus*. Adirondack Mts.

24. *P. GERARDII* Pk. *Gerard's* Brand.

Spots as in the preceding species; sori clustered, compactly crowded together or confluent, tawny or cinnamon-brown; spores and peduncle as in the preceding, but paler in color.

Leaves of asters and goldenrods, especially of *Aster simplex*.

This species is perhaps too near the preceding, from which it may, however, be distinguished at a glance by the different color of the sori and their densely confluent or matted mode of growth, which frequently causes the whole cluster to appear like one very large sorus. Sometimes the sori occur quite abundantly on the upper surface of the leaf.

25. *P. CIRCEÆ* Pers.

Hypogenous; spots pallid or brownish; sori clustered, small, often confluent, brown or tawny; spores oblong, generally obtusely pointed, .001'-.0013' long, .0005' broad; peduncle mostly thick, about as long as the spore.

Leaves of *Circeæ Lutetiana* and *C. alpina*. Common. July to September.

In all our specimens on *C. Lutetiana* the sori have a dense matted appearance, but in all on *C. alpina* they are smaller and distinct, sometimes beautifully circinating and a little darker colored.

26. *P. SOLIDA* Schw. *Compact* Brand.

Hypogenous; spots unequal, brown or purplish, often concave above and convex below; sori clustered or scattered, compact, sometimes densely matted together, blackish-brown or black; spores oblong-clavate, narrow, constricted, .0016'-.0022' long, .0005' broad; peduncle very short.

Leaves of *Anemone Pennsylvanica* and *A. Virginiana*. Fort Edward. *Howe*. Greenbush. May. Not common.

This is *P. Anemones-Virginianæ* Schw. in *Fungi* of North Carolina. The lower cell of the spore gradually tapers toward the base till it is scarcely broader than the peduncle.

27. *P. LYCHNIDEARUM* Lk. *Lychnis* Brand.

Hypogenous; spots pallid or cream-colored; sori unequal, scattered or clustered, subrotund or oblong, sometimes circinating and confluent, brown; spores oblong, narrow, constricted, obtusely pointed, .0016'-.002' long, .0005' broad; peduncle subhyaline, equal to or exceeding the length of the spore.

Leaves of some cultivated *Dianthus*. New Baltimore. *Howe*.

The spores in this and the three preceding species are pale in color when seen through the microscope.

28. *P. PYROLÆ* Cooke. *Polygala* Brand.

Hypogenous; spots pallid or cream-colored, sometimes margined with brown or purplish hues; sori numerous, clustered, surrounded by the ruptured epidermis, subcircinating, sometimes crowded, black; spores elliptical or obovate, obtuse, slightly constricted, .0013'-.0016' long, .0006'-.0007' broad; peduncle subhyaline, generally equal to or exceeding the length of the spore.

Leaves, petioles and stems of the flowering wintergreen, *Polygala paucifolia*. Bergen swamp. *Clinton*. Sandlake and Portville. May to September.

The name of this species is not appropriate. *P. Polygalæ* would be better, as the plant has yet been found on *Polygala paucifolia* only. It is not at all likely that it will ever occur on any species of *Pyrola*.

29. *P. ACUMINATA* Pk. *Dwarf-Cornel* Brand.

Hypogenous; spots brown or reddish-brown, sometimes tinged with purple; sori large, clustered or scattered, compact, prominent, often confluent, surrounded by the ruptured epidermis, black; spores oblong, constricted, obtusely pointed or acuminate, .0018'-.0025' long, .0006'-.0007' broad; peduncle colored, one-half to wholly as long as the spore.

Leaves of the dwarf cornel, *Cornus Canadensis*. Sandlake and Adirondack Mts. August.

This is a very pretty and distinct species. The clusters of sori are small and often arranged in a circle around a free central space or around a single sorus. The acumination of the spore is variable, being abrupt and short, gradual and long, straight or oblique, central or removed to one side. The spots are sometimes concave

above, convex below. The purplish tint, when present, is more conspicuous on the under surface of the leaf.

30. *P. WALDSTEINÆ* Curt. *Dry-strawberry Brand.*

Habit, spots and sori as in the preceding species; spores oblong or oblong-clavate, constricted, obtuse, .0016'-.002' long, .0005'-.0006' broad; peduncle colored, equal to or exceeding the length of the spore.

Leaves of the dry strawberry, *Waldsteinia fragarioides*. Fort Edward. Howe. Portville. September.

In external appearance this species is much like the preceding one, but the spores are smaller and obtuse and the peduncle is longer. I have seen no description of this species and take the name from the labeling of Dr. Howe's specimens.

31. *P. POLYGONORUM* Lk. *Polygonum Brand.*

Spots yellowish, often confluent; sori minute, scattered or clustered, sometimes crowded together in a confused manner, blackish-brown or black; spores obovate or oblong-clavate, generally constricted, obtuse, .0013'-.0018' long, .0006' broad; peduncle colored, very short.

Leaves of various species of knotgrass, *Polygonum amphibium*, *P. Pennsylvanicum* and *P. Virginianum*. Buffalo. Clinton. New Baltimore. Howe. September and October.

The sori sometimes occur abundantly on the upper surface of the leaf. The upper cell of the spore is usually shorter than the lower and is sometimes nearly globose. *Trichobasis Polygonorum* Lev. is the Uredo form.

32. *P. CONVULVULI* B. & C. *Morning-glory Brand.*

Hypogenous; spots yellow or brownish, sometimes indistinct or none; sori unequal, scattered, for a long time covered by the epidermis, then surrounded by its ruptured remains, black; spores oblong or oblong-clavate, broad, constricted, obtuse, .0018'-.0022' long, .0008'-.001' broad; peduncle colored, thick, about half as long as the spore.

Leaves and stems of the wild morning-glory, *Calystegia sepium*. Common. October and November.

The sori frequently occupy the whole under surface of the leaf and before the epidermis is ruptured have a livid hue. I have seen no description of this species, but have specimens from Dr. Curtis, which are labeled with this name and are identical with mine. I cannot distinguish the Uredo form of this species from that of the preceding one.

33. *P. OBTECTA* Peck. *Hidden Brand.*

Cauline; sori unequal, often very large, angular or orbicular, scattered or confluent, slightly elevated, long covered by the epidermis, black; spores oblong or oblong-clavate, sometimes curved, constricted, obtuse or obtusely pointed, .0018'-.0024' long, .0008' broad; peduncle colored, seldom half as long as the spore.

Stems of the lake rush, *Scirpus validus*. Watkins and Montezuma marshes. September. Also on *Scirpus pungens*. Albany. October.

The green stems of the rush are often mottled by discolored spots, a sterile or imperfect state of this fungus, but I have found fertile specimens on very old dead stems only.

34. *P. CORONATA* Ck. *Crowned Brand. Mildew.*

Amphigenous; spots pallid or yellowish; sori narrow, oblong or linear, crowded, long covered by the epidermis, then surrounded by its ruptured remains, black; spores oblong, not constricted, mostly tapering toward the base, truncate at the apex and crowned with a few prominent blunt tooth-like processes, .0016'-.0022' long, .0006' broad; peduncle colored, very short.

Leaves of grasses and cereals. Common. August and September.

This species is well marked by the apical crown of teeth.

35. *P. LINEARIS* Peck. *Linear Grass Brand.*

Amphigenous; sori very narrow, deeply seated, oblong or linear, parallel, crowded, long covered by the epidermis, black; spores oblong, slightly tapering toward the base, not constricted, very obtuse or truncate, .0018'-.0024' long, .0006' broad; peduncle colored, very short.

Leaves and sheaths of grasses. Watkins. September.

This is closely related to the preceding species but is without the apical teeth of the spore.

36. *P. GRAMINIS* Pers. *Grass Brand. Corn Mildew.*

Amphigenous; sori oblong or linear, crowded or confluent, often parallel, surrounded by the ruptured epidermis, black; spores obovate oblong or oblong-clavate, slightly constricted, generally obtusely pointed, sometimes obtuse, .0016'-.0024' long, .0006' broad; peduncle colored, one-half to wholly as long as the spore.

Leaves and sheaths of grasses and cereals. Very common and variable. Autumn and spring.

Probably this Puccinia is more injurious to the interests of the farmer than any other. Its Uredo form is the *Uredo Rubigo* of

the older authors, *Trichobasis Rubigo-vera* Lev. In this condition it is the "rust" of the grain fields.

Variety *brevicarpa* has the sori smaller, the spores obovate or elliptical, generally obtuse, .0011'-.0015' long, and the peduncle thick. It occurs especially on *Panicum capillare*, and may be *P. emaculata* Schw. I have received it labeled "*P. striola*," but it certainly runs into the present species. It occurs oftener on the leaves than on the sheaths, but the ordinary form is most abundant on the sheaths, sometimes rendering whole internodes black.

37. *P. ARUNDINACEA* Hedw. *Reed Brand.*

Amphigenous; sori subrotund or oblong, sometimes confluent, prominent, blackish-brown; spores oblong, obtuse or apiculate, strongly constricted, septate in the middle, .0016'-.0023' long, .0007'-.0008' broad; peduncle subhyaline, two to four times as long as the spore.

Leaves of *Phragmites communis*. Montezuma marshes. September.

I have seen no American specimens with apiculate spores. This is *P. Arundinarie* Schw.

38. *P. STRIOLA* Lk. *Sedge Brand.*

Hypogenous; spots pallid or none; sori oblong or linear, sometimes crowded, prominent, surrounded or partly covered by the ruptured remains of the epidermis, blackish-brown or black; spores oblong or oblong-clavate, slightly constricted, obtuse, .0016'-.002' long, .0006'-.0007' broad; peduncle slightly colored, one-half to wholly as long as the spore.

Leaves of various sedges. Autumn. Not rare.

In all my American specimens the spores are more clavate than in the European and scarcely to be distinguished from those of the next species. The spore figured was taken from authenticated European specimens.

39. *P. CARICIS* DC. *Carex Brand.*

Hypogenous; sori subrotund, prominent, scattered, sometimes crowded, blackish-brown or black; spores oblong-clavate, slightly constricted, .0013'-.0018' long, .0006' broad; peduncle subhyaline, one-half to wholly as long as the spore.

Leaves and sheaths of *Carices*. Autumn. Common.

This species scarcely differs from the preceding, to which some authors unite it, except in the character of the sori and the slightly smaller spores. It is doubtful if it is more than a mere variety. The upper cell of the spore is subglobose. The *Uredo* form is *Trichobasis caricina* Lev.

40. *P. ANGUSTATA* Peck.

Hypogenous; spots pallid or none; sori oblong or linear, sometimes regularly arranged at equal intervals in long parallel lines, narrow, surrounded by the ruptured epidermis, black; spores narrow, oblong-clavate or elongated, septate above the middle, strongly constricted, having the lower cell more narrow than the upper and cylindrical or slightly tapering downwards, .0018'-.0024' long, .0006' broad; peduncle colored, thick, very short.

Leaves of *Scirpus Eriophorum* and *S. sylvaticum*. West Albany and Watkins. September.

The long narrow spore and very short peduncle, which is seldom more than one-fourth the length of the spore, distinguish this species. The lower cell is sometimes scarcely broader than the peduncle.

It will be seen that eight of the foregoing species inhabit Compositæ; four, Rosacæ; four, Cyperacæ; four, Graminæ; three, Umbelliferae; two, Ranunculacæ; and one each, Berberidacæ, Violacæ, Caryophyllacæ, Portulacacæ, Geraniacæ, Polygalacæ, Grossulacæ, Saxifragacæ, Onagracæ, Cornacæ, Rubiacæ, Labiatæ, Convolvulacæ, Polygonacæ and Liliacæ. All except two, *P. pulchella* and *P. Prunorum*, inhabit herbaceous plants. The two exceptional species are very rare. The former occurs on a small shrub, and our specimens of the latter were found on young seedling plants but a few inches high.

In closing this report, I desire to express my thanks to those botanists whose names appear in the preceding pages, for their kind and hearty coöperation in the investigation of our flora and for their generous contributions of specimens. A continuance of their aid is earnestly solicited.

When no name is added to the station or stations herein given, the plant has been found therein by the writer. Dates signify the time when the specimens were collected.

Respectfully submitted.

CHAS. H. PECK.

ALBANY, *January 9th*, 1872.

ERRATA.

- Page 10, line 5, for three read several.
Page 18, line 16, for *Lamna* read *Lemna*.
Page 61, line 20, for pruinosa read pruinsum.
Page 66, line 4, for Rutamurarie read Rutamuraria.
Page 67, line 4, for Boutelona read Bouteloua.
Page 68, line 17, for glancodea read glaucodea.
Page 77, line 2, for oppressed read appressed.

EXPLANATION OF PLATE I.

AGARICUS (TRICHOLOMA) DECOROSUS Peck.

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- Fig. 1. A young plant.
- Fig. 2. A plant of ordinary size.
- Fig. 3. Vertical section of a pileus.
- Fig. 4. Spores $\times 400$.

AGARICUS (TRICHOLOMA) FALLAX Peck.

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- Fig. 5. Two plants of ordinary size.
- Fig. 6. Vertical section of a pileus.
- Fig. 7. Transverse section of a stem.
- Fig. 8. Spores $\times 400$.

CLAVARIA CLAVATA Peck.

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- Fig. 9. A lump of earth bearing four plants.

RÆSTELIA AURANTIACA Peck.

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- Fig. 10. Seven plants on a pome of *Amelanchier Canadensis*.
- Fig. 11. Vertical section of a pome showing the imbedded bases of the peridia.
- Fig. 12. Two spores $\times 400$.

STREPTOTHRIX ABIETINA Peck.

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- Fig. 13. A piece of bark bearing four tufts of plants.
- Fig. 14. Spores $\times 400$.
- Fig. 15. Flocci $\times 400$.

CLASTERISPORIUM PEDUNCULATUM Peck.

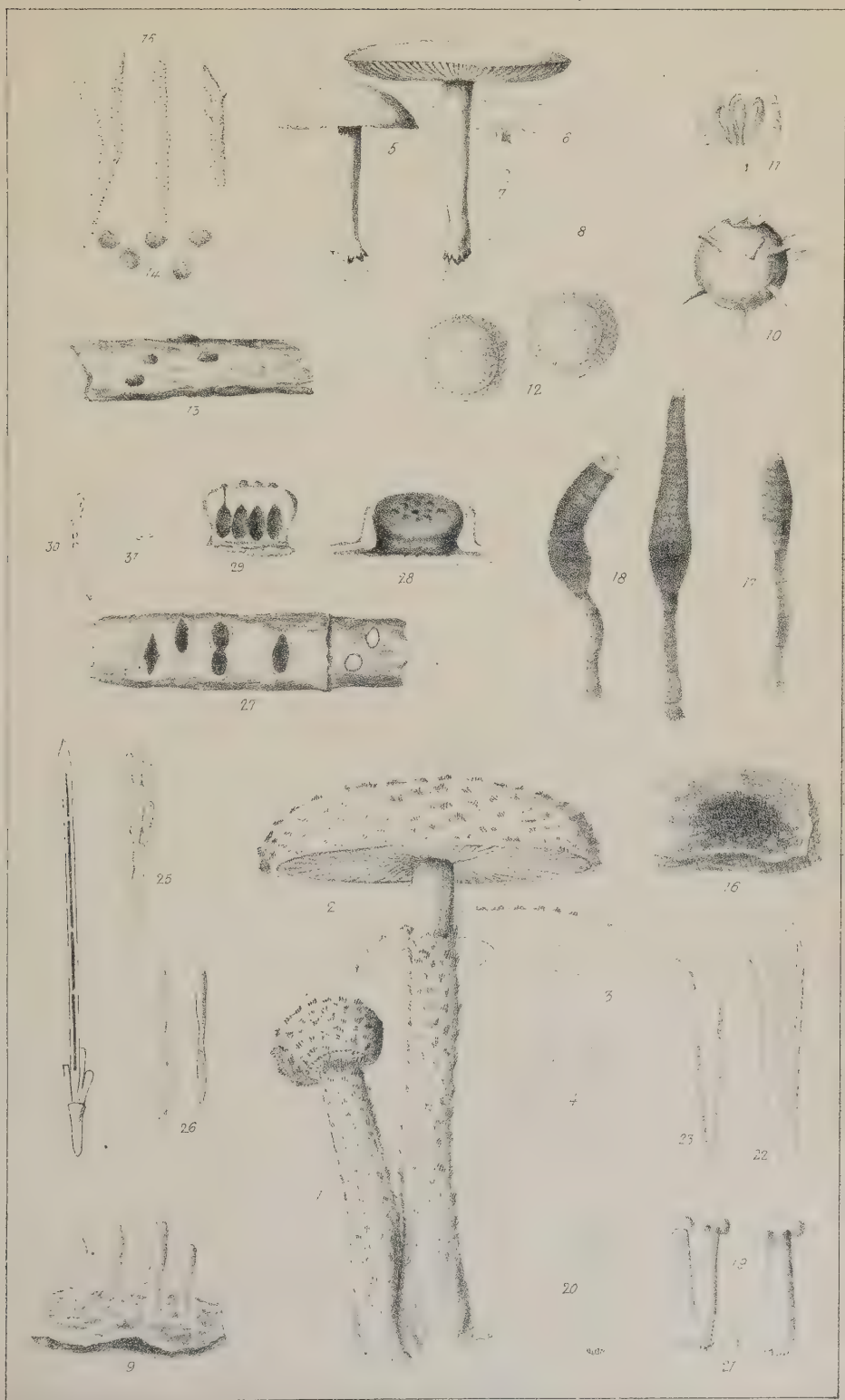
Page 93.

- Fig. 16. A piece of wood bearing a patch of plants.
- Fig. 17. A young spore and its stem.
- Fig. 18. Two mature spores and their stems.

VIBRISSEA LUTEA Peck.

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- Fig. 19. Three plants, two of them united at the base.
- Fig. 20. Vertical section of a plant.
- Fig. 21. Transverse section of a stem.
- Fig. 22. A paraphysis and an ascus containing spores $\times 400$.
- Fig. 23. Two spores $\times 400$.



EXPLANATION OF PLATE I—(Continued).

RHYTISMA LINEARE Peck.

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- Fig. 24. A pine leaf bearing the *Rhytisma* along the midvein.
Fig. 25. An ascus containing spores $\times 400$.
Fig. 26. Two spores, one involved in mucus, $\times 400$.

DIATRYPE (DIATRYPELLA) BETULINA Peck.

Page 101.

- Fig. 27. A piece of a branch bearing the *Diatrype*, the bark and two stromata having been removed from one end.
Fig. 28. A stroma magnified.
Fig. 29. Vertical section of the same showing four included perithecia.
Fig. 30. An ascus magnified.
Fig. 31. Four spores more highly magnified.

EXPLANATION OF PLATE II.

ILLUSTRATION OF SPORES OF THE GENUS PUCCINIA.

Pages 110-123.

- | | |
|------------------------------------------------------------------------|--------------------------------------------------------------------|
| Fig. 1, 1 ^a <i>Puccinia pulchella</i> <i>Peck.</i> | Fig. 22. <i>Puccinia Xanthii</i> <i>Schw.</i> |
| Fig. 2. <i>P. mesomajalis</i> <i>B. & C.</i> | Fig. 23. <i>P. Asteris</i> <i>Schw.</i> |
| Fig. 3. <i>P. Violarum</i> <i>Lk.</i> | Fig. 23 ^a <i>P. Ast.v.purpurascens</i> <i>C.&P.</i> |
| Fig. 4. <i>P. Myrrhis</i> <i>Schw.</i> | Fig. 24. <i>P. Gerardii</i> <i>Pk.</i> |
| Fig. 5. <i>P. Umbelliferarum</i> <i>DC.</i> | Fig. 25. <i>P. Circaeæ</i> <i>Pers.</i> |
| Fig. 6, 6 ^a <i>P. variabilis</i> <i>Grev.</i> | Fig. 26. <i>P. solida</i> <i>Schw.</i> |
| Fig. 6 ^b , 6 ^c <i>P. variabilis</i> <i>Grev.</i> | Fig. 27. <i>P. Lychnidearum</i> <i>Lk.</i> |
| Fig. 7. <i>P. Compositarum</i> <i>Schl.</i> | Fig. 28. <i>P. Pyrolæ</i> <i>Cooke.</i> |
| Fig. 8. <i>P. aculeata</i> <i>Schw.</i> | Fig. 29. <i>P. acuminata</i> <i>Peck.</i> |
| Fig. 9. <i>P. tripustulata</i> <i>Pk.</i> | Fig. 29 ^a <i>P. acuminata</i> <i>Peck.</i> |
| Fig. 10. <i>P. Peckiana</i> <i>Hoise.</i> | Fig. 30. <i>P. Waldsteiniae</i> <i>Curt.</i> |
| Fig. 11. <i>P. Nolitangeris</i> <i>Cd.</i> | Fig. 31. <i>P. Polygonorum</i> <i>Lk.</i> |
| Fig. 12. <i>P. Cryptotæniæ</i> <i>Peck.</i> | Fig. 32. <i>P. Convolvuli</i> <i>B. & C.</i> |
| Fig. 13. <i>P. Mariæ-Wilsoni</i> <i>Clinton.</i> | Fig. 33, 33 ^a <i>P. obtecta</i> <i>Peck.</i> |
| Fig. 14. <i>P. Tiarellæ</i> <i>B. & C.</i> | Fig. 34. <i>P. coronata</i> <i>Cd.</i> |
| Fig. 15. <i>P. Menthæ</i> <i>Pers.</i> | Fig. 35. <i>P. linearis</i> <i>Peck.</i> |
| Fig. 16. <i>P. Anemones</i> <i>Pers.</i> | Fig. 36. <i>P. graminis</i> <i>Pers.</i> |
| Fig. 17. <i>P. Prunorum</i> <i>Lk.</i> | Fig. 36 ^a <i>P. gram. v. brevicarpa</i> <i>Pk.</i> |
| Fig. 18. <i>P. Galiorum</i> <i>Lk.</i> | Fig. 37. <i>P. arundinacea</i> <i>Hedw.</i> |
| Fig. 19. <i>P. Helianthi</i> <i>Schw.</i> | Fig. 38. <i>P. striola</i> <i>Lk.</i> |
| Fig. 20. <i>P. investita</i> <i>Schw.</i> | Fig. 39. <i>P. Caricis</i> <i>DC.</i> |
| Fig. 21. <i>P. minutula</i> <i>Pk.</i> | Fig. 40. <i>P. angustata</i> <i>Peck.</i> |

